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A WORD AS TO TRADE CATALOGUES.

THE trade catalogue has won a place in literature, and we may expect in time to see libraries composed of trade catalogues alone. Busy men in industrial affairs have little time to write books detailing the results of their experiments and their discoveries, while those with whom writing is a profession have not the scientific knowledge to enable them to write in a style that will be valuable the story of the world's mechanical progress. Book-making is an expensive business, and the manufacturer whose time commands immense money returns justly regards it as a waste of effort to write books which cannot, in the nature of things, find a large sale. But in pushing the sales of their products manufacturing concerns have improved the character of their advertising matter until the broadside circular has evolved into the thick pamphlet or even the bulky volume. In its pages are to be found scientific and mechanical information which exists nowhere else, but which is of immense value in industry and trade. The fact that this advertising matter is supplied free of charge has prevented its receiving the proper amount of appreciation in some minds, and many intelligent people think of a catalogue as something to be thrown aside if, at the moment of its receipt, it contains nothing of immediate interest. But in the machinery trade, particularly, some live dealers have learned the advantage of preserving carefully the printed matter received from all the manufacturers in their trade, by means of which they are often enabled to supply a want speedily by turning to their library of catalogues, when without such a recourse they would find themselves at a disadvantage and real wants might go unfilled.

The preservation of printed matter of this class is not always an easy matter, and it is rendered more difficult by the fact that almost every catalogue printed in any branch of trade differs in size and shape from every other. Whenever manufacturers adopt some uniformity in size and style of the pages of their publications a great impetus will be given to the collection and preservation of these books, to the great advantage both of the makers of the books and of those who receive them. This is a matter which has gained some attention already from the mechanical trades, and it is equally worth the attention of every other trade, including that of rubber-manufacture. A single mail has brought to our office rubber-goods catalogues, some containing pages six or eight times larger than others, a fact which would discourage the rubber-dealer who had started out with the idea of preserving a collection of books of this class.

As these lines are written there is before us a pamphlet published by one of the rubber companies, devoted to bicycle-tires, and it is justly described on its first page as "a little work of art." The modern printer with the most complete appliances is not able to produce with ink and paper anything handsomer than the little book in question, while the illustrations are so artistic that every recipient of the catalogue must feel an inclination to preserve it. But the shape of the publication is not such as

to make this an easy matter, even if every other similar publication were of the same size. In addition to being attractive, this catalogue, like many others which have reached us, contains information of use to the trade, and it seems a short-sighted policy on the part of manufacturers, after their liberal expenditures in producing such a catalogue, to overlook any point that would help to make their productions permanently useful to the whole of the trade which it is intended to reach.

NEW PUBLICATIONS.

THE STATE OF PARÁ: NOTES FOR THE EXPOSITION OF CHICAGO, as Authorized by the Governor of Pará, Brazil, Doctor Lauro Sodre. New York: 1893. [Cloth. 8vo. 150 p.]

THIS volume, one of the most ambitious prepared for distribution at the World's Columbian Exposition, is a comprehensive handbook of one of the most important of the Brazilian States. It appears to have been planned by Dr. Lauro Sodre, governor of Pará, and eventually placed in the hands of the Baron de Marajó, president of the Pará State Commission at the World's Fair, who has had the book copyrighted in this country. It embraces chapters on the history of Pará, and its industries, by Ignacio Baptista De Moura, C. E.; a physical description, by Henrique A. de Santa Rosa, C. E.; public instruction, by Alexandre V. Tavares, M. D.; on public revenues and commerce, by Pedro da Cunha; on ways of communication and transport, by Manoel Odorico Nina Riveiro, C. E.; and on agriculture, by Alberto Torregao, C. E. The work has been excellently rendered from the original Portuguese into English by Madame M. F. Sesselberg, of Pará. The excellence of her work led to her appointment as a commissioner to the World's Fair, especially for the purpose of studying educational systems and reporting upon the same to her home government. Madame Sesselberg has since been appointed Brazil's lady juror on awards. The book is handsomely gotten up by G. P. Putnam's Sons, of New York. It includes a map of the State of Pará, a plan of the city of Pará, and some excellent half-tone views of prominent buildings in that city.

THE STATE OF AMAZON, BRAZIL, BY LAURO B. BITANCOURT, Member of the Brazilian Commission and Special Commissioner of the State of Amazon to the World's Columbian Exposition. Chicago: 1893. [Paper. 8vo. 16 p.]

THE commissioners of this State had placed at their disposal the sum of \$54,900 for expenses of preparing exhibits at Chicago. Besides procuring natural products, two photographers were commissioned to obtain views of Manáos and of important points in the interior, which were printed in an album mentioned in this journal on August 15. The pamphlet here noticed gives a general description of the State of Amazon, or Amazonas, an historical sketch, and statistics of public finances, trade and commerce, and navigation, together with some account of the city of Manáos. This pamphlet also has been translated from the Portuguese by Madame Sesselberg. A companion pamphlet is filled with a catalogue of woods, exhibited by the State of Amazon at the World's Columbian Exposition, embracing titles of 441 specimens.

BOLIVIA. BULLETIN NO. 55, BUREAU OF AMERICAN REPUBLICS. Washington: 1893. [Paper. 8vo. 413 p., with map and plates.]

THIS volume is valuable in its suggestions of the nature of this country rather than for definite statements in relation thereto. We cannot do better, perhaps, in illustrating the character of this country, as shown in the report, than to make an

extract from it, which, by the way, embodies what the book contains in relation to India-rubber:

"Skirting the banks of the Itenez or Guapore, the Beni, Madre de Dios, and the Purús rivers, are the great rubber forests where is produced the finest 'Pará' rubber known to the trade. Although the northern and northeastern territory of Bolivia, here denominated 'the Beni country,' is by common consent 'a land flowing with milk and honey,' whose inhabitants, according to George Earl Church, 'gaze upon a wealth sufficient to pay the national debts of the world,' it is for the most part as little known to the world as 'Darkest Africa,' and, under the present conditions, its vast natural wealth is even less available. In point of time and means of communication, it is, with the exception of Santa Cruz, farther from the chief centers of Bolivian population than the latter are from the United States or Europe. So remote and difficult of access is this region that Señor Lucio P. Velasco, a rubber merchant of Trinidad, on a recent trip, chose, rather than endure the hardships of a six weeks' to two months' overland journey, to travel via the Mamoré, Madeira, and Amazon rivers to the Atlantic ocean; thence to Colon and across the isthmus of Panama; thence down the Pacific coast to Mollendo, Peru; thence across Peru by rail to Lake Titicaca, and thence by steamer back again into Bolivian territory at the end of a ninety days' journey."

COFFEE IN AMERICA. METHODS OF PRODUCTION AND FACILITIES for Successful Cultivation in Mexico, the Central American States, Brazil and other South American Countries, and the West Indies. (Special Bulletin of the Bureau of American Republics, October, 1893.) Washington: Government Printing Office. [Paper. 8vo. 36 p.]

THE coffee-plant, indigenous to Asia and Africa, has found its true habitat in the new world, where its production is already many times greater than in the Eastern continent. Throughout the world there is a constant and rapid increase in the consumption of coffee, and the amount of production also has been steadily increasing for many years, yet the rising prices indicate that the supply is still below the demand. Coffee-culture under favorable circumstances is an extremely profitable occupation, and its expansion plays an important part in the increase of United States commerce with the countries to the south of us, which form the natural market for the surplus of so many United States products. This subject is mentioned in this place for the reason that the principal coffee-growing countries also produce India-rubber naturally, or are fitted for its cultivation, and every factor in the increase of commerce between the United States and these countries is bound to have a favorable effect upon the India-rubber trade.

PROCESS OF MANUFACTURING RUBBER BOOTS AND SHOES. Illustrated. Boston, Mass.: American Rubber Co. [Paper. 32 p.]

THIS is a handsome book, prepared for distribution at the World's Columbian Exposition, in which is told briefly the story of the manufacture of rubber boots and shoes as carried on by this company. The crude rubber is traced from the countries from which it is exported until it emerges from the factory in the form of footwear. The statement is made that in this country alone 200,000 pairs of rubber boots and shoes are manufactured every working day in the year. With the aid of the numerous handsome photogravures the reader may form a general idea of the way in which a rubber shoe is made.

RUBBER bumpers are now used in foot-presses, being inserted in the treadle-stop and treadle to check the motion. This obviates the banging noise so common in those presses and so unpleasant. The Ferracute Machine Co. (Bridgeton, N. J.) apply this improvement to all of their foot-power presses.

THE INDIA-RUBBER OUTLOOK IN AMAZONIA.

By the Baron de Marajó (Pará).

INDIA-RUBBER, which recently has become of such marked value to the people of the whole world, is of greater importance than anywhere else to the inhabitants of the two States of Amazonas and Pará, for whom it forms the chief source of private income and of public revenue. Having long resided in the valley of the Amazon, and in its chief rubber mart, it has occurred to the writer that some facts in relation to rubber-gathering might interest the readers of THE INDIA RUBBER WORLD, while serving to correct some mistaken ideas which have gone abroad, and especially those which tend to create apprehensions of the early extinction of this important product. The tree known as the *Hevea Guyanensis*, Aubl. (also as the *Siphonia elastica*, Pers., and the *Syphonia Guyanensis*, Juss., and *Jatropha elastica*, L.), and the *Hevea discolor*, Müll. Arg., and the *Siphonia discolor*, Benth., are known without local distinction in Amazonia as rubber-trees, the sap of which yields the product known in Europe as *caoutchouc*, in North America as *India-rubber*, and with us as *borracha*. These, however, are not the only trees in Brazil which yield rubber. There are the anani (*Moranobea globulifera*) the mangabeira, and the maçandaruba (*Mimosops elata*). Some writers have affirmed that "anani" was the general name by which the product of various trees was known. This, however, is not correct. The milk extracted from the anani, mangabeira, and maçandaruba is well known with us to have a distinctive quality. The attempt has been made by some manufacturers to mix the milk of the anani with that of the *Hevea* species, without success, and the anani gum is no longer exported as rubber.

The process employed in the States of Pará and Amazonas for preparing the rubber for market has been described, with more or less exactness, many times over, but may be briefly repeated here. The rubber-trees in general are found on low and marshy grounds, where they grow without cultivation, sometimes here and there in the forests, completely isolated, and sometimes in small groups. The existence of these trees having been discovered in any locality, the rubber-gatherers open a narrow path to lead from one tree to another, this being known as the "rubber-walk." The trees begin to yield milk when seven years old, but they do not arrive at maturity before the age of ten and should not be tapped earlier than this.

Early in the morning the rubber-gatherers distribute among the trees small cups made of either clay or tinplate—a greater number for a large and a lesser number for a small tree—for the purpose of receiving the precious sap. Incisions are then made in the trees with a very small hatchet, designed especially for this use, the number of incisions depending upon the experience of the cutter, who calculates what each tree can yield, according to its size or vigor. One of the cups is affixed to the tree, with a small piece of moist clay, immediately under each in-

cision, so as to catch the milk as it oozes out. In order not to harm the tree the incision should not be made to penetrate the trunk. What is known as a "rubber-walk" embraces from fifty to a hundred trees. As soon as all the cups have been fixed on the trees the cutter returns to the first tree and commences to collect the milk in a vessel of sufficient capacity to hold the yield of all the trees on his walk. After going from tree to tree until the milk has all been collected, he returns to his cabin or hut with the product of his morning's work, to continue the process by submitting the milk to the operation of smoking.

The "smoker" is the name given to a small thatched hut, generally pyramidal in shape, in which are kept sundry conical-shaped vessels about 26 inches high and 20 inches in diameter at the base, open at the top, and with an orifice on one side near the base through which to feed the fire. A small fire having been lit, the rubber cutter throws on it nuts of the iuajá (*masumilena rejno*) and of the urucury (*altalea excelsa*) palms, and when the smoke becomes very thick one of the before-mentioned conical earthen vessels (called "cuyas") is placed over it, the smoke coming out through the top. They then take a light flat wooden paddle, smooth on each side, and dip it into the milk, taking care that it shall be evenly covered on both sides with a light layer of the milk. This being exposed immediately to the action of the smoke, the milk congeals. The paddle is again dipped in the vessel containing the milk and exposed afresh to the action of the smoke, and so on, until the congealed milk on the paddle attains a weight of eight or ten pounds. The rubber ball thus formed is cut open at one side and the paddle removed, ready to be used over and over again.

Other methods have been used for coagulating the milk besides the tedious and troublesome process of fumigation, the best known one being that of a Brazilian, H. Strauss. The milk having been collected is placed in a large vessel. There is in readiness a solution composed of sulphate of alumina, in the proportion of ten ounces of sulphate to 8½ pints of water, which is poured over the milk at the rate of one part of the solution to twenty parts of milk. The whole is well stirred, and the mixture is then put into tin or wooden molds and left to settle until the next day, when the milk is found to be coagulated. It is then taken out of the molds and placed, one piece above the other, with pieces of board between, and on the last block a heavy weight is placed. The water at once commences to separate itself from the coagulated milk, and at the end of twenty four hours the weights are removed and the rubber blocks are placed in the sun to dry. Samples of rubber prepared by the Strauss process have been sent to England and the United States, where it was found that the gum thus prepared was inferior to that which had been through the process of fumigation.

Brazilian rubber as it is sent to market is divided into

three classes—fine, entrefine, and sernamby, or nigger-head. The first class consists of rubber of only one quality and with no impurities or mixtures. It is classed as entrefine when the block is defective or contains any substances other than the pure milk. The third class consists of the drops of milk which have overflowed from the cups on the trunks of the trees, or which fall to the ground and get mixed with earth, or are spoiled by foreign substances sticking to the milk.

Happily a more rational mode of procedure in tapping trees is coming in vogue—that of not making so many incisions as to exhaust the plant, and also in not cutting the same trees every year. When, a few years ago, rubber had begun to reach the high price that it now brings, the cutters, a stupid and uneducated set of people, took every means to obtain the greatest possible amount of sap, without taking the slightest heed whether or not the trees might be killed. One of the means employed by them, known as the "arrocho," consists in binding a strong wood-vine around the tree close to the roots, tightening this as much as possible with a short stick or "arrocho" so as to impede the circulation of the sap and the milk allowed to run until exhausted. The roots are afterwards pricked close above the ground, the milk running on the earth and constituting sernamby rubber. This reckless system, which speedily resulted in the death of the trees, is to day prohibited by law.

For some years past, the rubber-cutters who dispose of extensive lands, in the greater number of cases simply by right of occupancy, have come to the conclusion that with a more rational treatment the trees might last thirty or forty years, each one giving sixteen pounds, more or less, of rubber each year, which is better than to get double the quantity at one time and kill or exhaust the tree. Hence, more attention is now paid to the preservation of the rubber-trees. Formerly no one would buy rubber-walks; now, on the contrary, they are worth a great deal of money, being sold for 20, 40, and 60 contos of reis* and this induces owners to take pains with their conservation they being obliged on this account to remain in one locality for more than a year and by this means making the industry permanent in one place. Formerly it was always being shifted, thus obliging the owners or tenants to provide themselves every year with new outfits.

Mr. J. O. Kerbey, late United States consul at Pará, in his consular reports,† treating at great length and, in general, with great accuracy on this subject, is on the whole a pessimist and exaggerates when speaking of the extinction and total loss of the rubber-trees in a very short time. As I have just mentioned, a certain apprehension may be felt as to the future of this valuable tree, but I believe that his views go further than what is just, and for several reasons.

First, nearly all the rubber-trees grow in low grounds, covered with water,—some in places where they are subject to the rise and fall of the tide; others, and by far the

greater number, are watered by the annual rise of the Amazon and its tributaries. By this means the seeds are carried hither and thither by the waters, and are caught and held on any rise of ground or among roots or are deposited on the earth, when the waters fall. Then the dampness and the heat in a very short time cause them to germinate. They grow rapidly in the fertilized earth, and in this way nature, planting for itself new rubber-trees, compensates for the loss from those which disappear. In this way is explained the fact that at the lower extremity of the Amazon, in that part of its estuary known as "the Islands," notwithstanding its being the locality of the State in which rubber has been gathered for the greatest number of years, the production is always increasing. This favorable result is due partly, however, to the fact that the trees are in the hands of owners who are more or less well settled there and to whom it would be of no interest to see them destroyed.

Farther up the Amazon, in the States of Pará and Amazonas, notwithstanding the landowners have begun some time back to legalize their possessions, and by this means initiate an era of working with regularity, the trees are still destroyed to a great extent owing to the stupid ambition and the ignorance of those who, unaccustomed to the work, do not know how to make the incisions in the trees. Meanwhile in each of these States laws have been passed prohibiting all processes hurtful to the trees. Even if these have produced little or no effect as yet, they will, later on, helped by the personal interest of the landowners, have a beneficial effect.

There is still another reason for not fearing the rapid decrease in the production of rubber predicted by Mr. Kerbey. Of the 4,000,000 square kilometers which comprise the two Amazonian rubber-producing States, only the portions along the river have been explored, they having received attention first on account of the facilities for transportation. The rubber-trees are to be found, however, more or less abundantly spread over the whole surface of the country. The proof of this we have in the fact that this state of things has been going on for years, and yet the total production has increased. As I have already stated a light begins to shine on the horizon which ought to yield encouragement. It is the transformation of the rubber industry, only as yet in its infancy, but it ought to animate us. In a book recently published by one who traveled for a long time in these two States I find the gratifying information that in some few places the people are commencing to cultivate the rubber-tree. It is true that to get any result from the new trees one has to wait from eight to ten years, but as a compensation they are assured a source of certain income for thirty to forty years afterwards.

Among the means which, in my opinion, should be employed for encouraging the regular planting of these trees, I will mention a few. In the first place, the acquisition of plots of land half a league square should be facilitated as much as possible, not only having regard as to the first cost, but also making the cost of marking out of these lots as low as possible. The difficulty with this marking out has been

* One conto of reis = \$346, at par of exchange.

† Full abstracts of Major Kerbey's reports were given in THE INDIA RUBBER WORLD for February 15, 1892.

the great stumbling block to the acquisition of lands in Pará and Amazonas. In the second place, a prize should be offered to whoever first produced a plantation of 2000 rubber-trees three years old. The government would not lose by this, for these trees at the end of ten years would produce 16,000 kilograms of rubber which at 2500 reis per kilogram would pay in taxes more than 4:800\$000 reis, which would cover the expense of prize to be paid at once. Third, some reduction in the dues to be paid on rubber should be made to those who prove that it has been extracted in a proper manner. Finally the most severe penalties should be imposed for the destruction of a rubber-tree. The following note taken from a work of the engineer João da Silva Coutinho will show the benefits to be derived from this last measure :

"Take a lot of ground half a league square, giving a distance of five fathoms between the trees. This piece alone could contain 89,401 trees, but as part of it would be required for house, kitchen-garden, pasture, and other plantations, and as the irregularity of the ground in some

places will not admit of planting trees, the actual number of trees may be taken at 60,000, each of which, giving yearly on an average sixteen pounds of rubber, the crop can be taken at 30,000 arrobas (1 arroba = 32 pounds) which at 10\$000 reis per arroba will produce 300:000\$000 reis." But as Senhor Coutinho rightly says in his book, no rubber-worker can look after a lot of 60,000 trees, and what happens is that half of it is sold, which is still an advantage, as the probabilities of the ground being well looked after are thus increased. Besides the production of rubber it is evident that in such a plantation as is here mentioned there will be an enormous crop of seeds, the oil from which can be put to all uses for which linseed-oil is now employed.

Since these lines were written by Senhor Coutinho we have seen the number of uses of rubber increasing daily, as well as its market value, and at the present time it is never sold for less than 30\$000 reis per arroba, which would give an income of 900:000\$000 reis to a plot of ground as described by him, which would be a splendid speculation for a company.

BRAZIL'S RUBBER EXHIBIT AT CHICAGO.

By Mrs. M. F. Sesselberg (Pará).

AMONG the rubber exhibits in the Shoe and Leather Trades building at the World's Fair, one of the most prominent was that in the Brazilian section devoted to the crude rubber products of the States of Pará, Amazonas, and Ceará. In the center of the section was to be found a great ball or globe of India rubber, the pedestal of which was of genuine Pará rubber-tree trunk two feet in diameter and standing a little more than three feet in height from the floor. This ball embodied all the different qualities of rubber to be found in the State of Pará, representing forty-two districts. It was nine feet in diameter—the center being hollow—was divided into twenty-one sections or parts, joined together by narrow brass bands or strips, and weighed 520 pounds. The space around this curious globe was generally thronged with spectators and it proved one of the most interesting exhibits in the building. This rubber globe was an object of special interest to the Baron de Marajó, president of the Pará State Commission to the World's Fair.

The principal exhibitors of Brazilian rubber were :

Frank da Costa (of La Rocque, da Costa & Co.), six samples of fine, entrefine, and sernamby rubber ; also islands rubber, Itaituba and Cameta rubber.

A. Berneaud & Co., of Pará and Manáos—who advertise in THE INDIA RUBBER WORLD—sent a large sample of borracha fina (fine rubber) and river Madeira rubber.

The Commission Parcial presented three large specimens of rubber—fine, entrefine, and sernamby—from Pará.

The Amazon State Commission sent a great number of different exhibits of rubber, embracing the various grades produced in that State.

There were a number of exhibitors from the rivers Madeira, Purús, Jurua, and Branco. Luiz A. Serreira

Bentes sent a specimen of rubber coagulated by a special process. Adão Bonayer sent a specimen similarly prepared which had received a premium at Antwerp. Castro & Monteiro, from the river Aduniny, sent two samples of tatoy, the most perfect of borracha fina, one still within the clay furnace.

The Pará Commission exhibited a collection of all the varieties of rubber of the Amazon valley, prepared by Robin de Almeida.

Alexandre José de Lemos presented twenty kilograms of rubber coagulated by a new system.

The States of Ceará, Pernambuco, and Maranhão exhibited rubber from the mangabeira tree, the latter being the best specimen of mangabeira rubber in the building. Ceará also exhibited rubber *de manisoba*, but inferior to the rubber of Pará and Amazonas.

The Pará Commission also sent a collection of implements used in rubber-gathering. All this rubber was to be found in piles, loose or in packages, scattered around the Brazilian section, with the rubber globe in the center. Over the promenades were spread a great variety of animal skins, including tigers and leopards, and one snake skin eighteen feet in length and fifteen inches in width.

In addition to the Brazilian exhibits, crude rubber was shown as a curiosity in the displays of the several rubber-shoe manufactories represented in the building. The Boston Rubber Shoe Co. showed a collection of implements used in rubber-gathering, and a fine specimen of the *Siphonia elastica* tree. In the exhibit of the American Rubber Co., in addition to rubber-gathering implements and some of the rubber shoes imported from Pará fifty years ago, were specimens of African and Pará rubber. The Woonsocket Rubber Co.'s exhibit also contained curios from the Amazon valley.

INDIA-RUBBER FOR DEEP-SEA INSULATION.

Opposing Views in the Trade.

THE article entitled "Vindication of India-Rubber for Submarine Insulation," reprinted in the last number of this journal from an English contemporary, was the subject of an interview, for THE INDIA RUBBER WORLD, with Mr. Henry A. Reed, secretary of the Bishop Gutta-Percha Co. (New York). This is an old and well-known establishment, engaged in the manufacture not only of a great variety of Gutta-percha goods, but also of India-rubber insulated wires for some purposes.

"The article you reprinted from the London *Electrical Review*," said Mr. Reed, "is misleading and grossly inaccurate from beginning to end. The writer of it shows throughout utter unfamiliarity with the very elements of the subject. Let us take up his allegations *seriatim*. He starts out by saying that indications are not wanting that there must be a limit to the supply of Gutta-percha. Now the fact is that Gutta-percha is more plentiful and cheaper in the market to-day than it was at any time in the last four years. It is produced as fast as it ever was. The demand is far greater, however, than in the past. Still so long as it is as plentiful and cheap, relatively to former conditions, as it is now, all talk about the end of Gutta-percha is ridiculous.

"Next we come to the reference to 'paper and other substances' coming to the fore as substitutes for Gutta-percha. There has never been any effort made to use paper or similar substances for deep sea work. Paper is used in crossing small streams or underground; what it does is merely to separate the conductor from the lead. As long as the lead remains intact, the wire is insulated, but lead is easily injured in deep water, and nobody is ever likely to think of paper and similar substances for submarine cables.

"What the writer says with regard to the career of India-rubber in submarine telegraphy is true, and the account of the Hooper-core experiments is doubtless substantially correct. The Hooper process is twenty years old, and there has been ample time to test its virtues and possibilities. Now in England, Germany, France, and elsewhere, rubber insulation for submarine cables has been experimented with, the results being always and uniformly unsatisfactory. Our own torpedo people have tried it, and have also failed. The simple fact of the matter is that no India rubber compound has yet been made that will stand deep-sea pressure. Pure India-rubber would stand the pressure, but India-rubber cannot be used pure. It has to be adulterated for purposes of manipulation, and no compound remains waterproof under greater than ordinary pressure. Now we recommend rubber insulation for shallow waters and small streams. We make a cable compound similar to Hooper's, and we have used it for several years in water less than 400 or 500 feet deep. But in deeper water India rubber insulation is impracticable. As for the story of the success of Mr. John P. Hooper

with the cable between Cienfuegas and Santiago, it may be a striking and singular exception to the experience of everybody else, and if it really works as described, it is the only cable with rubber insulation that ever worked in deep water; but I am inclined to think it probable that that cable does not lie in *very* deep water.

"Now let us see what the writer says about the alleged advantages of India-rubber for submarine cables. Rubber insulation, he says, renders the detection of faults of manufacture an easier and more certain matter. There is absolutely nothing in this. There is no difference between India-rubber and Gutta-percha in this respect. Any absolute fault is easily located, while a weak spot merely is exceedingly difficult to locate. What is said about the teredo worm is true to some extent, though not for the reason specified. India-rubber will resist the teredo worm a little better than Gutta-percha on account of the oxids and the adulteration entering into the compound, whereas Gutta-percha should be and is used pure. Naturally the 'surface' is attacked in either case, but after one surface has been destroyed, there is another, isn't there, for the worm to attack. What is said about jointing is absurd. Gutta-percha is generally used for joints, even on cables insulated with India-rubber, and whenever any mending is to be done, Gutta-percha is used. The India-rubber joints have to be vulcanized, and hence there is always danger of over-vulcanizing the rubber that comes directly in contact with the joints. A still greater absurdity is the statement that rubber core is not suitable for conditions of alternate wet and dry and that it has failed when used as the leading-in shore-ends of cables. Why, the fact is exactly the reverse of this. The shore-ends *are* made of rubber, even in Gutta-percha cables. Gutta-percha does not stand heat; it softens when the sun strikes it. It is not at all suitable for leading-in shore ends, on account of the variations of temperature, which it fears. Rubber is not afraid of conditions of alternate wet and dry; Hooper's core can be made to stand these changes as well as Gutta-percha.

"The statement that in respect of price India-rubber possesses no marked advantage over Gutta-percha is equally wide of the truth. The very best India-rubber compound for insulation made is forty cents a pound, while the best Gutta-percha used is not less than \$1.50 a pound. For the same kind of core, India-rubber will cost you just about half of what Gutta-percha is. The exhortation to the rubber-manufacturers, therefore, to show that they can 'compete' with Gutta-percha in the matter of price is highly diverting. Rubber has an overwhelming advantage in that respect, and were it only possible to use it in deep-sea insulation, were it as durable as Gutta-percha, the latter would stand no chance whatever against it. But it is not possible as yet. And even in crossing shallow streams, where India-rubber insulation has been successfully used, the rubber does not last more than ten or fifteen

years, while many Gutta-percha cables are as good to-day as twenty years ago, when first laid.

"But of course, if Gutta-percha should go out, India-rubber would have to be used. It is certainly the next best thing."

* * *

Mr. WILLARD L. CANDEE, one of the managers of the Okonite Co., Limited (New York), was also interviewed on the success of the Hoopers with India rubber insulation in deep water.

"I do not doubt," said he, "that the statements set forth in the *Electrical Review* are correct, and I am not surprised at Mr. Hooper's success. India rubber can be used in submarine work just as successfully as Gutta-percha, and the general belief to the contrary is simply a widespread prejudice, nothing more. It is not supported by any facts whatever. Miles of India-rubber core are manufactured and sold, and doubtless some of it is used in deep water, although I am unable to refer you to any particular place where it is used. It is my opinion that India-rubber will work under deep-sea pressure, and the Hooper story confirms it."

"Why, then, is Gutta-percha so generally preferred?"

"Because people are prejudiced against India-rubber. Having become habituated to the use of Gutta-percha, they will not give the other material a fair chance. The case is by no means exceptional. There was a general prejudice against the introduction of electric lighting when it was first tried, and to day the irrational nature of that opposition can be clearly proved. People like to stick to good old ways, and it is not easy to get them to try something new."

"Is it not true, then, that India-rubber insulation has been tried both in this country and on the other side, and that it has been discredited by repeated failures?"

"I am not aware of any such experiments or failures. When anybody talks to you about such failures, try to get them to give you particulars. I think you will find that there are few, if any, real facts behind these general assertions about the failure of India-rubber insulation in deep water. You say India-rubber has been tried by our tor-

pedo people. Why, the government has never sanctioned any attempt to insulate its submarine cables with India-rubber. It does not allow the rubber-manufacturers to make specifications. It insists on its own specifications, and will have nothing but Gutta-percha."

"Still, it is but reasonable to suppose that if India-rubber insulation really worked anywhere, the fact would become known, just as the Hooper success has become known. It would be natural for the manufacturers to announce their success and thus vindicate India-rubber."

"Yes, the manufacturers would be apt to give publicity to such facts, but the purchasers often are unwilling to furnish the information to the public. It may be that there are to day many deep-sea cables with India-rubber insulation. It is only a mere accident that Mr. John P. Hooper's success has become public property."

"It is claimed, Mr. Candee, that even in shallow water rubber is not as durable as Gutta-percha."

"It is easy to make the claim, but not to substantiate it. Rubber-insulated cables have failed, of course, and so have Gutta-percha cables. But you never hear of the failure of Gutta-percha, because Gutta-percha is not on trial and people do not jump at conclusions when they learn of damage to a Gutta-percha cable. It is different with India-rubber. You are sure to hear of every case of damage as positive proof of failure. But it is prejudice,—nothing else."

"How about the statement that rubber has failed when used as the leading-in shore ends of cables? Is there any truth in that?"

"That is manifestly a mistake. Gutta-percha is far more liable to fail on account of the changes of temperature, which are fatal to it. I have never known rubber to fail in that application except through mechanical injury."

"Has India-rubber an advantage over Gutta-percha in respect of price?"

"It has a decided advantage. You cannot ship Gutta-percha core except in large tanks, to protect it from the changes of temperature, and this always adds materially to the expense. India-rubber core, on the other hand, you can ship in coils or in any other way at all."

HARD RUBBER AS AN INSULATOR IN ELECTRIC-RAILWAY WORK.

By W. R. Mason.*

THE extensive use of hard rubber for insulating purposes dates from the early electric railways. Because of its well-known insulating qualities, plain rubber had been used previously as an ingredient in different compounds for wire insulation where hardness was not a necessary quality. When such insulation was needed as would withstand not only the severe weather of our climate but also the wear incident to its use upon electric roads as line insulation, hard rubber was naturally thought of and put to the test in such service.

The necessity for exceedingly high insulating qualities,

as well as firm texture in railway fixtures, is apparent when the large number used upon a road is taken into consideration. The leakage from a single fixture may be insignificant, but, multiplied through a line of several miles, becomes a serious loss.

So far, therefore, as insulation was concerned, the early hard-rubber pieces were all that could be desired, but they still lacked sufficient strength to be long wearing under the trying conditions of line service. Attention was immediately given by a certain company to correcting these defects by special vulcanizing processes, and satisfactory results were obtained. The fixtures were made of rubber vulcanized to an extraordinary degree of hardness, and

*Read before the Northwestern Electric Association at Madison, Wis., July 20, 1893.

did not lose by the process the superior insulating qualities of the first hard-rubber insulators. The lack of certain desirable qualities in the earlier hard-rubber insulators led to experiments with other insulating substances and these experiments continue, and we trust will continue if improvement will result. Thus far no one insulator has embodied all the desirable qualities found in the hard rubber insulators which have now been in use on hundreds of electric roads throughout the world for many years.

Many compositions have been used and successively discarded during the time that vulcanized rubber has been held in favor by railway managers and superintendents. This has not been due to the disproportionately energetic push of its exploiting company, for the sale of the different compositions which have been successively before the trade during later years has been engineered with zeal and a conscientious belief, however mistaken, that each was a substantial improvement over hard rubber. But from first to last, up to the present time, hard rubber has been used because of its inherent merit. It has proven its value as an insulator for railway service of extraordinary efficiency.



STRAIGHT-LINE INSULATOR.
[Made of hard-rubber compound.]

And this involves not only its power as an insulator to withstand a current of 4000 volts after remaining under water for one hundred days (a test specially applied for determining its efficiency), but also its toughness and hardness to endure the changes of heat and cold and the effect of rain, snow, sleet, and ice. Hundreds of tests have been made to determine its efficiency under all adverse conditions, and it is surprising to note its unaltered efficiency in all circumstances.

An important point to be noticed is the reliability of hard rubber as an insulator. It is a fact, though not always one easy of explanation, that insulators have been manufactured of certain compositions, some of which were of excellent efficiency, and others were found to vary an undesirable amount from a proper standard of efficiency. This fault of varying efficiency has not troubled the users of hard rubber. It has been put to the severest test for a long time and has shown itself constant to its high insulating qualities. This is undoubtedly due to its simple composition.

It is well in considering the necessity for hardness and

toughness of insulators for electric-railway work to observe more explicitly the reasons for those requirements. It must, of course, be impervious to water or it might soon become useless as an insulator. It must be of the closest texture and fibrous in a measure to render it sufficiently elastic to endure the more or less frequent blows of trolley wheels and poles. A slightly brittle substance soon chips away and makes a renewal of insulators often necessary. This same strength is necessary to bear the building strains of the line, for, as well as an insulator, it is in almost all cases a key to the construction, which, failing in its office, impairs the whole line. For the very reason of its brittleness, glass, so serviceable as an insulator in telephone and telegraph work, cannot be used to advantage on railway lines.

To produce a substance of highest insulating qualities, not affected by weather changes, strong enough to bear the strains of construction and accidental blows from passing trolleys, of light weight and of unvarying efficiency, was not an easy task. But hard rubber by long service has demonstrated its high efficiency in all respects and in all conditions. When we notice the fact that some of the earliest hard-rubber insulators are still in use, one is almost justified in believing that there is no wear out to them.

As a proof of the high standard hard-rubber insulators have reached, it is enough to cite the case of many railway managers, who, striving intelligently to reduce expenses, have tried the frequently appearing new insulators, only to return to hard rubber as the best. Some one feature in a new pattern may strike the fancy and reason, but when one quality is prominent, others seem to suffer. The widespread use of hard-rubber insulators seems to indicate that all the desirable qualities of a railway insulator come nearest to perfection in it, and its merit is not based upon theory now, but upon the practical recommendation of scores, even hundreds, of railway managers and its use by them upon their roads.

WHY NOT TRY RUBBER CORKS?

IT is reported that investigation in France proves the existence of two or three types of moths in wine-cellars. The grubs feed on the fungoid growth that forms on the wine-vats and moldy corks. The insect bores and forms galleries in the cork nearest to the glass, and through the holes thus formed air gains access to the wine, spoiling it. The *San Francisco Chronicle* says:

"Our chief difficulty in bottling wines has been in obtaining a supply of perfect corks. At least 25 per cent. of corks, after examination for fitness, are rejected. An examination of several bins was made at the vineyards, and it was found that the corks were perforated, and in some cases the wine oozed through them. Now we are trying a method to stop the inroads of these grubs. After soaking the corks in hot water and then in brandy they are dried, and when they are put into the bottles the tops are coated with a layer of paraffin wax previous to sealing them with ordinary wax. We hope by the use of the paraffin compound to stop the ravages of these insects. Neither the grubs nor insects feed upon the wine, but simply use the cork as a place to deposit their eggs, and the coating may possibly prevent their entrance."

THE PROPOSED DUTY ON CRUDE INDIA-RUBBER.

Interviews with the Trade.

AMONG the countless suggestions which have come from Washington touching the revision of the tariff one continues to be heard from time to time in reference to restoring a duty upon crude India-rubber and Gutta-percha. The New York *Sun* has been persistent of late in urging that the spirit of the platform on which President Cleveland was elected will be violated if the tariff schedules are modified on any other basis than that of providing the necessary public revenues alone. In other words, no question must be entertained as to whether any particular interest will be benefited or injured by the new

placed a duty of 10 per cent. upon "raw or unmanufactured" rubber. The act March 3, 1857, contained two classifications of crude rubber, with a duty of 4 per cent. on each, namely:

India-rubber, crude and milk of.

India-rubber, raw and unmanufactured (bottles, slabs, and sheets).

By the act of March 2, 1861 (the Morrill tariff), both these items were placed upon the "free list." A later act in the same year placed a duty of 10 per cent. upon "bottles, slabs, and sheets," while the other item remained "free." From 1862 to 1870 all crude rubber was subject to a duty of 10 per cent. Since the latter date all crude rubber has been entered free of duty.

Gutta-percha was first mentioned in the act of March 3, 1857, a duty of 4 per cent. being specified. Four years later crude Gutta-percha was admitted free, which remained the rule until 1862. From that date until 1870 a duty of 10 per cent. was imposed. The crude gum has since been upon the free list.

MR. SPADONE'S VIGOROUS NEGATIVES.

A REPRESENTATIVE OF THE INDIA RUBBER WORLD in search of views of rubber-men on the proposition to place a duty on imports of crude gum, had an interview with Mr. A. Spadone, president of the Gutta-Percha and Rubber Manufacturing Co. (New York), a report of which follows:

"Do you believe that the majority of the Ways and Means committee of the House of Representatives will oppose a proposition to levy a tariff duty on crude rubber?" Mr. Spadone was asked.

"I believe they will," answered Mr. Spadone. "In fact, I don't see how there can be any question about it. To favor any proposition to tax crude rubber would be to run counter and antagonize the views so emphatically expressed by Mr. Cleveland in his first well-known tariff message and in nearly all of his subsequent utterances on the subject. He advocated free raw material, and the administration stands virtually committed to grant the American manufacturers free raw material. That alone will enable them to meet foreign competition under a lower tariff on manufactured articles. If the manufacturer will have the duties on his finished product lowered and those on his raw material raised, the foreign markets will be closed to him altogether. Crude rubber is on our free list to-day, and, so far as this element is concerned, we are on a footing of equality with the manufacturers of those countries which admit raw materials free. But the other materials used in the rubber trade are taxed, and some of them heavily taxed, and this, coupled with the fact that we pay higher prices for labor, makes competition with foreign manufacturers less easy than would be the case under a system of free raw material."

"You believe, then, that Congress would not impose a duty on crude rubber, even if the committee should recommend it?"

hearings. The following is the substance of the hearing held at the New York office of the Rubber Manufacturers Association, Oct. 18, 1893.

Of Course It Will.

To the Editor of the *Sun*—Sir: Will India rubber be taxed in the new tariff bill? It is impossible to grow this product in the United States, and no form of industry could be held to be benefited by a tax upon it.

BLYTHESBORO, Oct. 18. L. DE WESS OUTTEN.

Under the rule of revenue only India rubber must be taxed or the Democratic platform will be violated.

rates of duty. According to the *Sun*, the problem is simple: The government needs so much money, and our imports amount in value to a given sum; therefore, the lowest rate on all imports which will yield the desired rate is the proper one to adopt. Two clippings from recent issues of the *Sun* bearing upon this subject are reproduced

There Must Be a Revenue Duty on India Rubber.

To the Editor of the *Sun*—Sir: Do I read rightly in the *Sun* "in a tariff for revenue only, India rubber is taxed"? What amount of revenue shall we thus get and what good will it do us? Yours respectfully,

CORNER VACILLANCE.

Our imports of India rubber for the last year of which we have full returns, the year 1892, amounted to nearly twenty millions of dollars. An ad valorem tax of 30 per cent., which is about what a revenue tariff would require to be levied on every imported article, would yield six millions of dollars to the Treasury, and fill up a handsome part of the great deficit which is upon the country.

Statement of Revenue of Queens Co.

on this page, followed by expressions of opinion from several members of the rubber trade.

THE INDIA RUBBER WORLD is advised that the Ways and Means committee have given little attention so far to rubber, either crude or manufactured. There has been no hearing in behalf of the rubber interest. A date was assigned for Mr. Kiel, of the Butler Hard Rubber Co., in behalf of the hard-rubber interest, but he failed to appear before the committee.

DUTIES ON RUBBER IN THE PAST.

INDIA-RUBBER was first mentioned in the tariff legislation of the United States in the act of July, 1832, where it was enumerated in the "free list." The act of July 30, 1846,

"I do. There can hardly be any doubt as to the drift of Democratic opinion on the subject. Raw materials must, according to the pledges and general expectations, be admitted free."

"But how about the principle of a revenue-tariff? If the protective feature of the tariff is to be subordinated to revenue considerations, why should there be any discrimination between finished products and raw material; in other words, why not tax everything?"

"Because common sense, the laws of commerce, and a thousand other things, forbid it. To tax raw materials would mean ruin to the manufacturer as well as to labor. Besides, the Democratic platform really involves no such absurd proposition as that of taxing everything without reference to consequences. It says tariff for revenue, which means simply that duties will be levied for the sake of revenue and not in order to afford protection to this or that class of manufacturers. But the inference that tariff for revenue involves the imposition of duties upon everything is without the least warrant. What articles to tax and at what rate, is left to the statesmanship and experience of the legislators; and they cannot help seeing that the plan advocated by the *New York Sun* is an utter impossibility. The manufacturers will accept a lower tariff provided they obtain their 'raw material free.'"

"Now what would be the effect upon the rubber trade of a duty on crude rubber? Do you believe the trade would adjust itself to the new conditions without difficulty?"

"No, sir. The trade would receive a very severe shock. A duty on crude rubber would strike at the very life of the business. The consequences would be exceedingly serious. Consider them for a moment. In the first place, the cost of manufactured goods would be increased to the consumers. This effect is obvious, and the first to suggest itself. Increased price means diminished demand, hence the quantity produced would also be diminished. This in turn involves a serious reduction of the number of people employed in the rubber industries. In the next place, we should be shut out of foreign markets, and that also reacts on labor and capital very injuriously, as is easily perceived. On the other hand, the foreign manufacturers would be in a position to meet our prices in our own market. Then there would be another serious result. The quality of the goods would necessarily be lowered, and an era of adulteration would set in. People would be unable to pay the higher prices which the duty would entail, and inferior articles would be put upon the market to satisfy the customers of small means. It is hardly necessary to dwell on the manifold evils of such a degradation of the trade. Finally, we must not overlook another important effect. Under the condition contemplated by the *Sun*, more capital would be required for carrying on the rubber business, and this would give an undue advantage to the more powerful concerns, while driving the smaller ones to the wall. The business would be concentrated in fewer hands, with the result that both the smaller business men and labor would suffer. People talk about the tendency towards concentration, yet here is a proposal which would greatly accelerate this tendency in one particular line of business."

"Would the trade unite in opposition to an attempt to put a tax on crude rubber?"

"No doubt of it. The trade would fight it vigorously. At the recent hearings before the Ways and Means committee the rubber trade was not represented, not having been invited. But no attempt to tax crude rubber would be allowed to be made without active and rightful opposition."

A LESSON FROM CANADA.

JAMES BENNETT FORSYTH, of the Boston Belting Co., speaking of the *New York Sun's* articles, said: "Such a duty on crude rubber would be the very worst thing that could possibly happen to the rubber industry of the country, and there is nothing that would so quickly paralyze our business or that would give it to the manufacturers of cheap foreign goods as would such a tariff. A gentleman whom I know very well has just returned from a long stay abroad, and he tells me that German rubber goods, particularly, are made far more cheaply than we can by any possibility make them, and that in spite of our tariff—or even if the tariff were higher while we had to pay more for our crude material than they—we should be absolutely barred out of our own markets. My impression is that a 25-per cent. duty ought to be placed on all manufactured rubber goods coming into the United States, but if I understand the Democratic party's principles at all, free raw materials are what they have always cried for. Such a tariff on crude rubber would be a remarkably good thing for Canada, for duck, rubber, and in fact everything that goes into the manufacture of rubber goods there, are admitted free. When there was a duty on these materials in Canada we had agencies in all the principal cities there and sold lots of goods. But as soon as that duty was taken off, the Canadian mills got the trade and we sell very little there to-day."

AN IMPORTER THINKS THE IDEA FOOLISH.

IN an interview with a representative of THE INDIA RUBBER WORLD Mr. George A. Alden, of Boston, long established as a leading importer of rubber, said: "I remember that about the year 1852 there was a duty of 10 per cent. on crude India-rubber. This continued until 1859 or 1860, when it was abolished. In the year 1861 a duty was put upon crude rubber which was known as a differentiated duty and it was designed to tax all goods that were brought into this country in British bottoms. This duty was 10 per cent. on all goods coming from any point east of the latitude of the Cape of Good Hope. If an importer of rubber could show a direct invoice, say, from a Madagascar rubber-shipper, no duty was required. If, however, the same goods were purchased for the same parties by the agents on the continent and billed in their name, a 10 per cent. duty was required. This tariff caused considerable trouble. We paid duty on a lot of rubber bought by our agents in Marseilles but paid it under protest and received it back only when we proved that the goods were shipped direct from Zanzibar to America. Later, in order to avoid this duty, we had to have a consular certificate that the goods were purchased direct from the rubber shippers. This duty was taken off in 1880 and crude rubber has been free ever since. Regarding the

THE INDIA RUBBER WORLD



suggestion by the New York *Sun* that a 30-per-cent. duty should be paid upon crude rubber, it is one of the most absurd ideas that I have yet heard. In fact, such a policy would ruin the rubber industry in the United States. Were the American manufacturers forced to pay such a duty, European makers of all kinds of rubber goods would take possession of the whole American market and there would be no help for it. Within six months after the enactment of such a clause you would see a half a dozen rubber-mills in Canada near the border, manufacturing goods and selling them in this country cheaper than any of our own mills could produce them. I do not think, however, that there is any danger of such a suggestion being carried out. It is merely newspaper talk and not very wise talk at that."

CONGRESSMAN APSLEY'S VIEWS.

TO THE EDITOR OF THE INDIA RUBBER WORLD: The proposition to put a duty on crude India-rubber (which is now on the free list), thereby putting a direct tax on the people without benefiting any one, is ridiculous and in my judgment will not likely be done—not even by a Democratic Congress. Very respectfully, L. D. APSLEY.

Washington, D. C., October 30, 1893.

FROM A HIGH FREE-TRADE AUTHORITY.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Although I cannot speak with authority, I do not believe there is any foundation for the idea that any duty will be imposed, under the reconstructed tariff, on the import of crude rubber. Yours respectfully, DAVID A. WELLS.

Norwich, Conn., October 22, 1893.

THE EARLY AMERICAN TRADE IN PARÁ RUBBER.

By Harry G. Johnson.

THE business of importing Pará rubber into the United States originated at Salem, Mass., during the "forties." One of the earliest firms in Salem to become interested in this trade was that of Bertram & Curwen, one member of which, Mr. James B. Curwen, still lives. He is probably now the oldest man living who has ever been connected with the rubber-importing trade. The facts embraced in this article are based upon information gained from Mr. Curwen during a visit to his residence, in a commodious structure of colonial type, on Essex street.

The first rubber brought to Salem was in the form of toys or bottles. Afterward Captain Benjamin Upton, a master mariner, who was in the Brazilian trade, brought home a pair of rubbers, made upon a clay mold as near as possible to the shape of a foot. The Salem merchants who, at that time, were among the largest traders in the United States with foreign countries, became convinced that there was money in the Pará rubber trade, and forthwith they embarked in it. The first merchants to bring rubber to this country from Pará were Robert Upton, Benjamin Upton, Thomas Pingree, and the firm of Bertram & Curwen.

As soon as the Salem merchants found that their new trade was destined to become profitable, they sent out shoe-lasts to the natives, on which they smeared a little clay, and then successfully covered the same with the milk of the rubber-tree. The rubber in that crude form was then shipped to Salem.

During the earlier period of the trade the Salem merchants sent out cargoes of general merchandise to exchange with the natives for the rubber. That exchange was well received by the natives for several years, but after awhile they refused to exchange the rubber for merchandise, demanding letters of credit on the Bank of England.

The rubber was sold to merchants and manufacturers all over the United States, and particularly the manufacturers of suspenders. The suspender-manufacturers used

the rubber bottles made by the natives, pressing each into the form of a cake, when the insertion of a spindle through the center of the bottle would cut it into a ribbon and subsequently into threads.

In 1850 Bertram & Curwen established in Pará a factory for the manufacture of rubber shoes. Lasts were taken out and a fine shoe was placed upon the market. Their shoe was known to the trade as "fabrica" and had an (F) stamp upon the instep. The shoes sold readily all over the world. Their trade was impaired almost the day that Charles Goodyear invented his process of vulcanizing rubber, and in a short time they went out of business as manufacturers of rubber shoes, the rubber thereafter being brought to this country and treated to Mr. Goodyear's process and then made into shoes.

As soon as the Salem merchants became interested in the rubber trade they sent agents to Pará and established houses. In several instances the heads of the firm went out and took an active part in the business.

The collection of the gum or milk by the natives was made by making a V-shaped cut in the bark of the tree, under that placing a clay cup to catch the juice or milk as it exuded from the incision. The natives would set a great many cups and then keep emptying them into gourds or calabashes. After the natives had secured a goodly amount of the milk, they would make it into bottles. That was done by fashioning a bottle of clay and inserting a stick or handle in the bottle. The native would then hold the bottle by the handle and pour the milk upon it, keeping it in motion until the milk congealed. The operative would then hold the bottle over a dense smoke until the rubber hardened sufficiently to permit of its transportation and use. After the rubber had become of sufficient hardness the natives would take the clay bottle out from within by wetting the clay. The rubber bottle would then be carefully washed and disposed of to the traders.

The natives gathered the rubber upon molds of clay when the Salem merchants first took up the trade. There were serious objections to the method, and Mr. Curwen

turned out a biscuit-shaped spindle and sent it to the agent of the firm of Bertram & Curwen at Pará, with orders to try it in the gathering of the rubber. The spindle was given a fair trial and worked so successfully that Mr. Curwen had hundreds of dozens turned out and sent to Pará, all the rubber-gatherers making a demand for them. It was found that the rubber gathered in that manner was far more desirable for the trade of the suspender-makers, besides which the spindle was a far more economical mold than clay. Spindles of the same style are still in use.

The Salem dealers were in the trade to a large extent practically but four years, and the importations for that

period were as follows, as shown by the records in the custom-house made famous by Nathaniel Hawthorne :

	Pounds.
In the year 1850-51.....	434,000
In the year 1851-52.....	1,961,000
In the year 1852-53.....	1,407,000
In the year 1853-54.....	2,056,000

They continued to import rubber for several years, but the importations never reached so high a figure again. Salem merchants soon commenced to withdraw from the commercial world, and their places were taken by shipping firms of New York and Boston, who still remain in the business.

Salem, Mass., October 28, 1893.

A SUIT FOR ROYALTIES ON RUBBER BOOTS.

SUIT has been filed in the United States Circuit Court for the District of Massachusetts by the Hall Rubber Co. (Boston) against the Boston Rubber Shoe Co., for royalties on the Hall rubber-lined rubber boot. The specifications of this patent are in brief as follows :

No. 216,269.—Rubber Boot or Shoe. F. E. Hall. Patented June 10, 1879.

The object of this invention is to increase the durability and efficiency of rubber boots and shoes, and to render them capable of repeated inward cleansing.

My invention consists in a rubber boot or shoe provided with a distinct inner lining of vulcanized-rubber compound, and having between said lining and the outer coating of rubber an interposed sheet of cloth or other fibrous material. It also consists in such a boot or shoe constructed with the seams or joints of the lining located diversely from those of the outer coating. It is customary in the manufacture of rubber boots and shoes to apply an inner lining of woolen or some other textile material, coming next to the leather boot or to the foot or stocking of the wearer. With such construction the textile lining is speedily soiled, and after a few weeks wear becomes so permeated with foul odors and perspiration from the feet as to be very offensive and positively injurious to health. No cleansing can remove the filth so incorporated with the fiber of the lining ; and, since it is impossible to wash it clean or wipe it dry, the lining is soon rotted away and becomes worthless. By my improvement the lining is made of rubber compound, and vulcanized with and to the outer coating of rubber through the interposed fibrous sheet, so that the inside of the boot presents a smooth surface of vulcanized India-rubber, which is entirely non-absorbent of odors, impervious to moisture, and may be readily and repeatedly washed or swabbed out, and quickly dried, so as to be permanently sweet and durable. The interposed sheet of cotton cloth or similar textile material, placed between the outer part and lining is usually calendered, so as to be integral with one of said parts, and hence requiring no separate cutting or fitting. This textile sheet or layer serves to stiffen the stock, since the rubber from the sheets each side of it unites through its meshes, and it adds to the strength of the material far more than an equal thickness of rubber would do. I usually cut both outer coating and lining from stock having such a fibrous backing, thus bringing two textile sheets between the rubber body and lining. I cut the stock for the rubber lining somewhat differently from that which is to form the outside, so as to bring the seams along different lines, or to break joints, in order to guard against leakage by reason of holes inadvertently left where the seams occur. It is obvious that, under this arrangement, in no case can moisture penetrate beyond the point where the outer and inner rubber sheets meet, since a perforation in one would be stopped by the impervious wall of the other.

The boots will ordinarily be made in metal molds, and may be vulcanized by steam heat, since the steam does not penetrate the rubber lining, as it would the usual woolen lining, which is thereby caused to peel away from the rubber, to which it should be permanently united.

1. A rubber-lined rubber boot or shoe having interposed between the lining and the outer body of rubber one or more sheets of suitable textile material, the several parts united by vulcanization, substantially as and for the purposes set forth.

2. A rubber boot or shoe provided with a rubber lining and an interposed fibrous body vulcanized thereto, and having the seams of the lining located differently from those of the outer body of rubber, substantially as and for the purposes set forth.

A brief history of the arrangements that the Hall Rubber Boot Co. had with the various concerns making the rubber-lined boot with and without license may be interesting. The first arrangement was made with the Woonsocket Rubber Co., by which the latter were to have exclusive control of the patents. A second arrangement with the same company gave them exclusive control, but allowed them to lay aside 20 per cent. of the royalties due the Hall Rubber Boot Co. for the formation of a trust fund, which was not to exceed \$5000 at any time, and was to be used in possible litigation with infringers. A third arrangement with the Woonsocket company allowed the Hall Rubber Boot Co. to license other manufacturers, they paying the Woonsocket Rubber Co. 20 per cent. royalty. These were canceled by mutual agreement, pending a new arrangement which was never entered into. Soon after the issue of the Hall rubber patent C. M. Clapp, proprietor of the Aetna rubber-mills, made a rubber boot lined with mosquito netting, but soon abandoned it and took out a license making a rubber-lined boot under it. The companies licensed and paying royalties to the Hall Rubber Boot Co. were the Boston Rubber Shoe Co., Woonsocket Rubber Co., New Brunswick Rubber Co., Goodyear Rubber Co. (Middletown), American Rubber Co., C. M. Clapp, Hayward Rubber Co., Brown Rubber Co., Franklin Rubber Co., Pará Rubber Shoe Co., and the India Rubber Glove Co. The Candee Rubber Co. paid royalties but were not licensed. The royalties at first were 10 cents a pair on men's boots, 8 cents on boys' and 6 cents on youths'. In order to reduce the jobbing price to that of wool-lined boots these royalties were reduced to 5 cents on men's, 4 cents on boys', and 5 cents on youths'. It is said that in all about \$50,000 were paid in these royalties. A point that is made by the Hall Rubber Boot Co. is that the fusion-lined boot is in reality a rubber-lined boot and that it is covered by the Hall patent. If this is proved, a great deal of money will naturally come to the Hall Rubber Boot Co. The officers of the company are Harry B. Hall, president, and Frank E. Hall, treasurer.

* * *

THE bill of complaint, filed by William B. H. Dowse (Boston) and John R. Bennett (New York), attorneys, sets forth that the

complainant is a corporation established under the laws of Maine, while the Boston Rubber Shoe Co. is described as a concern having factories at Malden and Melrose, Mass. The complaint is for an action of contract and states first that Frank E. Hall, before and at the time of his application for letters patent, was the first inventor or discoverer of a new and useful invention in rubber boots, not then known or used by others before his invention, and not at the time of his application for letters patent in public use or on sale with his consent or allowance; that he had paid fees and complied with all the requirements respecting letters patent; that on June 10, 1879, he was granted patent No. 216,269 to run seventeen years, that on October 6, 1879, he assigned to the American Rubber Co. one-half of the invention and on July 30, 1880, the American Rubber Co. re-assigned that same one-half to Edward R. Hall, and that on May 15, 1882, Frank E. Hall and Edward R. Hall sold and assigned to the Hall Rubber Boot Co. all right, title, etc., of the invention; and that that company has since been the sole owner and is entitled to all rights, interests, and privileges secured in said letters patent. Further it is alleged that the plaintiff and defendant did on September 8, 1883, enter into a written agreement of license under these letters patent, as follows: the defendant agreed to pay to the plaintiff as royalty, on men's boots, 10 cents; boys', 8 cents; youths', 6 cents; women's, misses', and child's 3 cents per pair; second, to make full, true, and complete returns of the entire number of rubber boots and shoes made under the patent on the first day of each quarter, beginning with January; third, the agreement of license to remain in force during the life of the patent; fourth, a stamp designed and supplied by the plaintiff should be placed on the front of the leg of each boot, the defendant agreeing to pay 25 cents per pair, liquidating damages for each pair not so stamped.

It is alleged further, that the defendant has made many pairs of such boots and shoes and made no reports, and made many and not stamped the front of the leg, although the stamp was furnished, and, although repeatedly requested since April 1, 1891, the defendant had refused to render account and the plaintiff had suffered damages to the amount of \$50,000, for license fees and liquidating damages.

Filed with this bill of complaint is a list of interrogations which inquire in legal terms whether the defendant entered into a contract as stated, ask for production of copy of the contract, inquires whether the defendant since September 8, 1880, has made, sold, or used any rubber boots under this patent, require samples of such goods to be shown, require an accounting of the number of rubber-lined boots made, an accounting of the rubber boots and shoes known as fusion or friction-lined, ask that copies of entries in books of account and all sales inquired about be annexed, and call for bills of sales, invoices, etc., of such goods. They also ask for a statement whether the defendant has paid any money under such a license and the amount, whether defendant has made returns, and ask the amount of returns, whether the front of the leg of the boot was stamped, and ask that the defendant shall state what goods have been manufactured and have not received the stamp and to show sample.

* * *

THE answer of the defendant, by Strout & Coolidge, attorneys, denies every allegation in the plaintiff's writ and says, if it shall be proved that the defendant ever owed any sum of money whatever to the plaintiff, that it has been fully paid. The defendant corporation states that on September 8, 1883, it joined in an instrument of writing or license which was signed by the defendant. It is alleged that by the fourth paragraph in

this license it is provided that the party of the first part agree to give the party of the second part "full benefit of any future reduction of license fees granted to any other party which shall be less than those herein guaranteed and shall notify them of such reduction in order that the license fees shall conform to the reduced fees to the others. And this agreement is made with the understanding that the fees herein granted are as low as any in force."

The defendant says that the plaintiff has made contracts with other parties than the defendant, and under which they were permitted to make rubber boots containing the alleged patent 216,269 without making any payment whatsoever to the plaintiff, and the defendant therefore says that by reason of the terms of the instruments in writing the defendant is not so obliged to make any payment whatsoever to the plaintiff. Further, that on September 8, 1883, the defendant joined in an instrument in writing with the plaintiff (the license before spoken of) and in the fourth paragraph it was agreed that the defendant should receive as low rates of royalty as any other party, but by other licenses granted, the licensees were permitted to deny the validity of the patent and the defendant is also permitted to deny its validity. The defendant claims that the patent is invalid for the following reasons:

(a) Because the alleged invention of Frank E. Hall was not an invention when produced by him, did not involve a patentable invention, and was not a proper subject for letters patent.

(b) Because the invention was not novel when produced, and that rubber boots substantially identical with it were, prior to the invention, patented in letters patent of the United States, No. 849, granted to Charles Goodyear in 1838; No. 8100, granted to Day in 1851; No. 83,131, granted to Coles, Jacques and Fanshawe in 1868; No. 166,233, granted to John W. Sutton in 1875; No. 186,123, granted to Dennis C. Gately in 1877; No. 209,953, granted to Robert Beatty and John H. Haulenbeek; also the letters patent of England, No. 10,692, granted to Keen in 1845; No. 1771, granted to Thomas Forster in 1853; No. 3136, granted to Hall in 1864; No. 906, granted to Poinsel in 1868.

(c) Because the invention was not novel when produced and that rubber boots substantially identical were prior to the invention known and used by the following persons, Henry B. Childs (Cleveland, Ohio) and C. M. Clapp & Co. (Boston).

(d) Because the invention was in public use more than two years before Frank E. Hall made application for letters patent thereon.

In further answer the defendant says, acknowledging the license signed in 1883, that it has been evicted from use of the invention and therefore is entitled to deny the validity of the patent, and that it is invalid for reasons specially set forth in the last paragraph of the defendant's answer. Further, that upon January 1, 1891, the defendant repudiated the licence in writing and they have refused to be bound by any terms thereof and that the plaintiff acquiesced in said repudiation. The defendant alleges that the patent has not been enforced against other manufacturers of rubber boots and shoes many years prior to January, 1891, and that the plaintiff has permitted other manufacturers to manufacture boots and shoes embodying the invention of Frank E. Hall and without objection and without attempt to collect royalties, and without any attempt to enjoin such manufacturers from manufacturing, and the defendant has been evicted from all use of the advantage which it might otherwise have obtained from the licence had the plaintiff enforced or attempted to enforce its rights against such other manufacturers. The defendant says it was induced to sign and enter into the instrument known as a license by rea-

son of representations of the plaintiff that the patent was valid and that they would enforce its rights against all other manufacturers and would protect the defendant in its use, but the plaintiff has not enforced its rights and other manufacturers in defiance of it have manufactured boots similar to those manufactured by the defendants and in direct competition with them and deprived them of all advantages it would otherwise have received from the license. The defendant further says that in view of the state of the art, the plaintiff's patent must be so narrowly construed that it can be of no value and must be invalid and the license is without consideration and void. The defendant says that the plaintiff fraudulently concealed from the defendant the fact that it had made rebates to other manufacturers so the royalties paid by them were very much less than the sums paid by the defendants in the license. The defendant further says that the license was accepted by them upon the belief that the patent therein was necessary to allow it to manufacture rubber lined boots and shoes and that unless it entered into such a contract the plaintiff would not permit the defendant so to manufacture. That the defendant up to and including January, 1891, paid in to the plaintiff various sums of money as royalties believing that it received the benefits which by the terms of the license it had a right to receive, but that about that date it learned that it had been deceived and that the plaintiff was not receiving from other parties the royalties it had agreed to receive.

* * *

THE defendant corporation, by Elisha S. Converse, treasurer, says that the defendant became a party to an instrument in writing with the plaintiff on September 8, 1883, but does not admit that it related to any improvement in rubber boots and shoes, or to any valid invention relating to the same, and believes that said instrument was obtained by a concealment of material facts because of its invalidity. The defendant corporation since September 8, 1883, has made and sold rubber boots containing a rubber lining and has interposed between such inner and outer rubber lining of the boot a sheet of suitable textile material, united by vulcanization, and the defendant denies that this contrivance was a patented improvement or contained patentable points of utility or validity, or that there were improvements within the meaning of the patent law or that

they were patented with letters patent No. 216,269. It has made and sold rubber boots known as rubber-lined boots containing the same kind of a contrivance since 1879, and even as far back as 1854, when a patent was granted in England to one Thomas Forster. The defendant in his answer goes on to recapitulate all the patents granted to different parties in the United States and England, all of which will be found in his answer to the bill of complaint. The defendant says that he has made rubber boots and shoes with an inner lining of cloth or similar textile fabric, which are different from anything described or shown in the said patent, and in which the plaintiff has no interest or right to information or other right either under a patent, agreement, or otherwise. He denies that a boot or shoe so made with an inner lining, even of a textile fabric, in any sense contains any invention claimed by the plaintiff, and says that up to the time of filing these interrogatories no intimation was made that such boots contained or could contain, in fact, in the opinion of the plaintiff, or any one else, the invention described in the letters patent. Nor was any such claim made by the plaintiff or for the plaintiff. They have never been requested to pay royalties, nor have they paid royalties upon boots and shoes such as are described in this answer. The defendant further says that he ascertained, among other things, that the Woonsocket Rubber Co., without the knowledge of the defendant, and contrary to the terms of the license, were paid large sums of money by the plaintiff as rebates. It is also learned that the L. Candee Co. was permitted to manufacture rubber boots containing the invention, that the said company had a license from the plaintiff, but that the plaintiff did not for many years prior to January 1, 1891, ever receive or ask any license fees from the L. Candee Co. That by the terms of that license to the L. Candee Co. the validity of the Hall patent was expressly not admitted. That the L. Candee Co. deny the validity of the patent and declined to pay royalties and that the plaintiff allowed them to manufacture boots containing the invention upon the payment of "no cents" per pair. That the plaintiff has full record of all payments and is in possession of all returns made by the defendant, that no boot has ever been manufactured under the license embodying any alleged or patented invention without being stamped as the plaintiff designated.

THE RUBBER-RECLAIMING PATENTS IN LITIGATION.

IN connection with the suit between the Chemical Rubber Co. and the Goodyear Metallic Rubber Shoe Co. some particulars may be given in regard to the business in general of recovering rubber. Most of the rubber that is recovered is derived from old boots and shoes, and is brought back nearly to the original state of unvulcanized compounded rubber by two different processes, known respectively as the "mechanical" and the "acid" processes. In the former the old boots and shoes are first passed through fluted rolls which cut them into small pieces, then through finer rolls until they are ground to a powder, then through an air-blast machine which blows out the fiber, then over a series of magnets for the purpose of removing the bits of iron.

The second, or "acid" process, which is one of devulcanization, is to place the rubber powder in open steam heat to volatilize the sulphur. After this devulcanization of the product it may be sheeted and worked exactly as if it were a mass of unvulcanized compounded rubber. The acid process is practically the mechanical process with the substitution of the acid bath for the air-blast, that is, instead of blowing the fiber out

of the comminuted shoddy, it is destroyed by the acid. There have been many different patents and processes to accomplish this end, those upon which the suit of the Chemical Rubber Co. is based being shown in the analysis of their patents which is embraced in this article.

There are five large mills owned by the Rubber Reclaiming Co., all of which use the acid process, and make a business of supplying rubber-manufacturers with their products. There are five mills aside from this, that make for the general rubber manufacturers either "mechanical" or "acid" shoddy, and in addition to these there are nine large manufactories that have recovered-rubber plants of their own and use the whole output of these plants. It will thus be seen that the business is a very large and important one, and one that should interest every manufacturer of rubber goods.

The six patents for various processes of recovering rubber from vulcanized and unvulcanized waste, controlled by the Chemical Rubber Co., which are the basis of their complaint against the Goodyear Metallic Rubber Shoe Co., are as follows:

PAGE(S)

MISSING

each of said divided tubes, and means for adjustably fastening the ends of each wire to said rim.

No. 505,929.—Vehicle-Tire. Albert E. Spangler, Syracuse, N. Y.

In a wheel, the combination with a concave rim, a pneumatic sack and shoe inclosing it and having thickened edges lying in said rim concavity, of a lock comprising flat hands resiliently connected and expansible laterally in the plane of their faces when the sack is inflated, engaging the edges of the shoe.

No. 505,939.—Woven Fabric for Wheel-Tires. James Lyall, New York city.

As a new article of manufacture, a woven tubular fabric having longitudinal warp threads and the weft thread laid back and forth to increase the number of picks one side of the tube and cause it to assume a circular or coiled form adapted to the wheel upon which it is to be employed.

No. 506,179.—Bicycle-Tire. Joseph P. Lavigne, New Haven, Conn., assignor of one-half to Wilbur F. Day, Sr., same place.

The combination with the wheel, its rim or felly; pneumatic tube holder and pneumatic tire arranged of a flexible circumferentially arranged clamping and treading shoe; said shoe carrying short metal sections whose edges are lapped or otherwise engaged so as not to interfere with the flexibility of the said shoe, said shoe arranged to span the open mouth of the tube holder, compressing the sides thereof against the said pneumatic tube and means for maintaining said shoe in place.

MECHANICAL GOODS.

No. 507,044.—Packing for Joints. John A. Barnes, Cleveland, Ohio.

The combination in a joint packing, of a core of elastic material, with or without cotton duck or other insertion, and a coupling perforated or roughened on its inside, and covered on its outside with a suitable material, whereby the elasticity of either the core or the coupling or both will cause each to adhere tightly to the other, and whereby on pressing the coupling and core, one will become partially or wholly embedded in the other.

No. 505,086.—Lawn-Sprinkler. Stephen S. Black, Pasadena, Cal.

A spray apparatus in which the exit or delivery holes are constructed and arranged radially in two series of alternating vertical pairs as set forth, in one series of which the axes converge at an acute angle, in the other or alternating series the axes converge at a less acute angle, the axes of each pair focusing separately in the same horizontal plane, the foci being equidistant from the vertical center line of apparatus.

BOOTS AND SHOES.

No. 505,258.—Shoe. George W. Wellert, Rochester, N. Y.

The herein described shoe, consisting of an upper having untrimmed surplus, an inner sole having a covering and binding of waterproof material from the toe to the shank and stitched to and protected by the surplus of the upper, and an outer sole secured to the upper and inner sole.

No. 505,655.—Overshoe-Holder. Charles L. Hammerstein, St. Louis, Mo.

An overshoe-holder comprising a single wire formed into a body, having arms at one end provided with hooks, and a clamp at its other end, provided with inner and outer jaws fitting one jaw within the other jaw, and a slide working on the body and adapted to close the jaws.

No. 505,885.—Overshoe. Theodore P. Paxson, Canton, Ohio.

A rubber shoe having in the base of its heel on its inner surface a narrow semicircular recess immediately adjacent to the rear wall of the heel.

No. 506,142.—Attachment for Rubbers. Leon J. Weatherwax, Aberdeen, Wash., assignor of one-half to Nelson D. Edmonds, Chicago, Ill.

A rubber shoe having a rearwardly and upwardly inclined spring lever secured to the sole of the shoe forward of the heel portion, and having its upper free end adapted to be compressed by the inserted shoe to bear against the breast of the heel of the latter shoe.

No. 505,734.—Means for Securing Rubber Shoes Together. George F. Umstead, Pittsburgh, Pa.

A pair of rubbers or overshoes provided on corresponding sides, the one with a button-hole, the other with a button, whereby the rubbers can be secured together when not in use.

DRUGGISTS' SUNDRIES.

No. 504,744.—Catheter. Oscar de Pezzer, Paris, France.

As a new article of manufacture, a catheter made of a sheet of pure India-rubber, rolled into required shape, and having its edges thinned and cemented together.

No. 504,764.—Syringe. Walter F. Ware, Camden, N. J.

In the syringe, the combination of the barrel, the piston provided with a disk at its lower end, a rubber cap incasing said disk and having an inwardly projecting flange engaging on the inner side of said disk around said piston rod.

INSULATED WIRE.

No. 505,916.—Insulating Compound and Method of Manufacturing the same. Joseph Hoffman, Schenectady, N. Y., assignor to the General Electric Co. of New York.

The compound substantially as herein described consisting of asbestos fiber with a binding material consisting of asphaltum, beeswax and shellac. The method of manufacturing the molded material herein described, which consists in mixing powdered asbestos with asbestos fiber, spraying the mixture with a solution of asphaltum and beeswax, drying it to expel the solvent, then mixing therewith powdered shellac and albumen and finally molding the mealy substance thus produced under heat and pressure.

MISCELLANEOUS.

No. 505,007.—Billiard Cushion. Charles Schulenburg, Detroit, Mich.

In combination with a billiard cushion, the parts comprising the cushion being molded together and including a flat metal strip embedded in the rubber, so that the greatest width of the metal strip will be parallel with the rear face of the cushion.

No. 505,703.—Packing-Gasket. Cheever K. Dodge, New York city, assignor to the Metropolitan Rubber Co., of Connecticut.

A packing gasket, in which is comprised a solid, split body, made of elastic, compressible material, and a coupling, also of elastic, compressible material, adapted and arranged to pass over the meeting ends of said body, and be compressed upon the exterior thereof, covering the split.

No. 545,745.—Wrist and Finger Exercising Apparatus. Robert Barclay, Fort Howard, Wis.

The combination of a hollow wristband adapted to encircle the wrist or other part of the body, a hand-pump (a rubber bulb) adapted to be grasped in the hand, and a tubular connection between the hollow hand and the hand-pump.

TRADE-MARKS.

No. 23,598.—Rubber and Textile Hose and Belting. Boston Woven Hose and Rubber Co., Boston, Mass.

Essential feature: The representation of a tiger's head; used since April 1, 1889.

No. 23,666.—Rubber-Soled Canvas Shoes. North British Rubber Co., Limited, Edinburgh, Scotland, and London, England.

No. 23,428.—Rubber-Lined Hose. Cornelius Callahan, Canton, Mass.

Essential feature: The letters "CCC;" used since March 20, 1893.

No. 23,276.—Dental Dam. I. B. Kleinert Rubber Co., New York city.

Essential feature: The word "Kleinert" on the representation of a maltese cross; used since February 1, 1893.

No. 23,376.—All Manufactured Rubber Goods. Hodgman Rubber Co., New York city.

Essential feature: The letters and abbreviation "H. R. Co.," in the form of a monogram; used since January 3, 1891.

INDIA-RUBBER SCRAP.

REMARKING upon the efforts of a certain manufacturer to introduce his cotton belting by decrying that of rubber, a prominent dealer remarked: "The party says that rubber belting will not run crossed. If he cared to use it and would place some black lead or plumbago upon it, he would find no trouble in that respect. As for its not being available when it is wet, that is our strong point, and that is why we sell so many to elevators where the belt is exposed to the vicissitudes of the weather, and other makes will not answer. So far as using a belt where there is much oil and grease used, we have to let that business pass to the other man. We sell very few belts to electric-light companies, for the reason that in the tremendous speeds they employ the oil of which they use extraordinary quantities flies over the belt and injures it."

THE rubber tip to obviate the noisy jar when one body or surface comes in contact with another is used in car-seat backs, which upon being turned over do not now give the shock once so apparent. A couple of rubber cones inserted in each edge is all that is necessary. Floor-stops are made with a rubber rim, when the former cannot be fixed to the side of the room. As refinement progresses, noise ceases and rubber is doing the work.

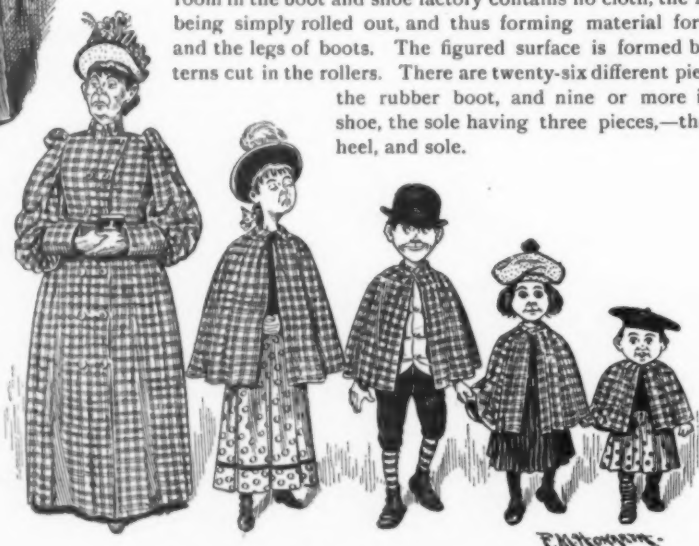


A FAMILY AFFAIR.

FROM "PUCK."

BRADY.—It's ashamed av yissilf yez should be, to be afther spendin' all th' money on wan of thim new stoyle mackintoshes fer yissilf and lave th' childer to suffer from the cowlid winds.

Mrs. Brady.—Wait till yez see us go to church in th' marnin', Dinna.



THE BRADY FAMILY EN ROUTE FOR CHURCH.

IN cotton spinning the perfection in details is evident in the existence of roller cloth. Compression and expansion are needed, and now it is done with cloth and flannel. Rubber would be better, but the subject has been neglected by inventors. As it is, rubber cloth is an uncertain quantity in cotton spinning.

* * *

VERMILION, so much used in the coloring of rubber goods, is a bright red pigment of remarkable body, and is found in its natural state in China. Artificial vermilions are made so well that they do not differ chemically from the natural. It is a softer color than carmine and does not require so much grinding. It is made in a great variety of shades from a bright orange to a deep crimson. Mixed with black it produces a brown, with brown, a bright orange, and with white, flesh tints. To produce the most delicate tints of the last named, the artist employs burnt sienna for the flesh color of a brunette, and lake and umber in addition to the sienna for the tawny hue of the South. Its manipulation and application require exceeding care.

* * *

A TRINKET or charm has lately been imported into this country having on one end an automatic rubber stamp with the name of the owner, or any other inscription that he may choose, and on the other a pencil or penholder, or both combined. The custom-house authorities have decided that this is dutiable at 45 per cent. *ad valorem*.

* * *

LAUNDRIES use considerable rubber belting, as they employ much machinery, and where there is so much steam and suds, leather would not last long. They are good customers for belts from one to nine inches wide. In rubber tubing they use the heavier sorts from $\frac{1}{4}$ inch to one inch internal diameter. The machinery of the modern laundry room is of the most elaborate character, there being a device for almost every motion taken from wagon back to wagon again.

* * *

A LARGE part of the compound run through the calender-room in the boot and shoe factory contains no cloth, the rubber being simply rolled out, and thus forming material for soles and the legs of boots. The figured surface is formed by patterns cut in the rollers. There are twenty-six different pieces in the rubber boot, and nine or more in the shoe, the sole having three pieces,—the top, heel, and sole.



The Storm Slipper.

Trade Mark—Registered.

MANUFACTURED EXCLUSIVELY BY THE

Boston Rubber Shoe Company.

THE SUCCESS OF THIS SHOE
IS WITHOUT A PARALLEL IN THE
HISTORY OF RUBBER FOOT WEAR.

High in front, reaching almost to the top of the boot, and
completely protects it from the dripping dress.

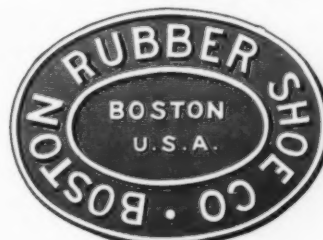
The Words :

Storm Slipper

are Trade Marked,
and can only be used to apply
to goods manufactured

by the
BOSTON RUBBER SHOE CO.

*None genuine
without this*

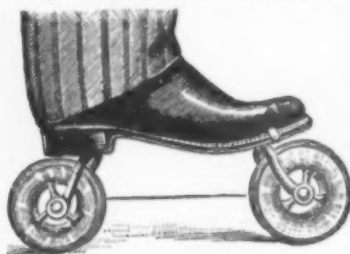


Trade Mark.

Mention the India Rubber World when you write.

NEW GOODS AND SPECIALTIES.

A RATHER formidable competitor of the cycle has made its appearance in England in the shape of a pneumatic road skate. It has lately been seen in the streets of Birmingham, and, judging from the admiration it excites, is not unlikely to find its way soon into all parts of the country. The invention, which was patented a short time ago by a Scotch firm, is evidently derived from the old roller skate of skating-rink celebrity, but whereas the ordinary roller skate has



PNEUMATIC ROAD SKATES.

four wheels, the pneumatic skate has only two, placed in line at either extremity of the skate. The wheels are rather larger than those of the roller skate and instead of solid rubber are covered with pneumatic tires. The patentees claim for

them that one can skate over ordinary turnpike roads with them the same as on ice and even at greater speed, while at the same time they will easily ascend and descend hills. Six or seven miles an hour, however, is the maximum speed attempted in the streets of Birmingham, and that only on smooth roads. An obvious advantage of the pneumatic skate over the pneumatic cycle is that punctured tires may be readily replaced, as the skater may carry surplus tires, or even reserve wheels ready fitted in his overcoat pocket. The skates are arranged to clamp or strap on the soles of shoes like ordinary skates, but the rollers are fitted with pneumatic tires. The rollers are fitted with ball-bearings, and run noiselessly; the rollers being $3\frac{1}{2}$ inches in diameter, the tires 2 inches, and the average weight of each skate is $2\frac{3}{4}$ pounds. J. H. Wilson & Co., Nos. 9-13 High street, Kirkcaldy, Scotland, are mentioned as the manufacturers of these skates.

"THE EXPERT" RUBBER-BAND DATING-STAMP.

IN sending out their pocket catalogue No. 20 of metal and rubber printing stamps, the R. H. Smith Manufacturing Co. (Springfield, Mass.) state that the sale of their goods has reached about half a million dollars. Their list includes a



"THE EXPERT" DATING-STAMP.

variety of stamps, special attention being directed to one which is termed "The Expert," a cut of which is shown herewith. The dates supplied with this stamp are complete for ten years, besides which there are nine useful words and the seven days of the week, all so arranged as to enable the user to print the day of the week, with any hour of the day, adapting it to many special purposes. Plates are made in various sizes, and, being changeable, several dies may be used upon the same plate. It is mentioned as a strong point in favor of this stamp, that the bands move with perfect ease, and always with certainty, by means of the finger-pieces project-

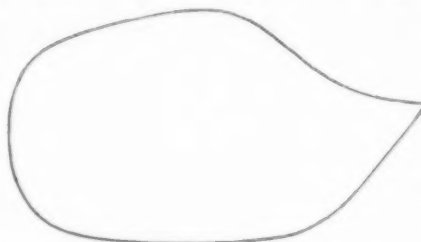
ing through slotted openings in the case, and as the moving device does not require them to be strained tight, they cannot break from overstrain; neither will they grow loose and move out of line, for each band has a light tension spring which holds it in place when set. The firm make a specialty, also, of "metal-bodied" rubber type. This is made by rubber-facing short, copper-alloy printer's type by a patented process, which retains its perfection of height and register and gives a sufficient thickness of rubber face for printing quality and durability, without being thick enough to lose its accuracy by shrinkage, warping or compression.



METAL-BODIED RUBBER TYPE.

IMPROVEMENT IN SOLE-CUTTING.

THAT remarkable triumph of inventive genius, the Wellman



sole-cutting machine, has scored another positive triumph, which is best explained by the accompanying diagram. Heretofore they have been able

to cut soles with a perfect bevel where any part of the sole contained a right or an acute angle. By a new and simple appliance they have succeeded in cutting perfectly a tap-sole similar to that shown herewith, a feat that was said to be impossible of achievement by any sole-cutting machine where a knife-blade is used to do the cutting.

"MARVEL" BOOTS IN MINIATURE.

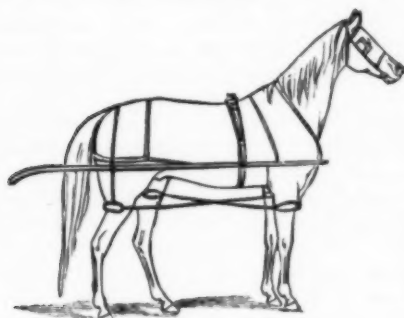
THE miniature rubber boots made by various rubber boot- and shoe-manufacturers have always been souvenirs that people have prized. One of the most perfect styles ever turned out is that which the Marvel Rubber Co. are distributing as advertisements of the "Marvel" goods. These are made differently from most miniature boots in that they are a product of an automatic machine that from two pieces of rubber, forms, molds, and vulcanizes the boots, twenty-four at a time, and thus turns them out more rapidly and accurately than could possibly be done by hand. Manufactured by the Marvel Rubber Co., Providence, R. I.



"MARVEL" BOOTS.

ELASTIC HOBBOLES.

A FURTHER use for rubber in horsemen's goods is in what are known as the Elastic Hobboles. These are designed to make a pacer trot, a trotter pace, and to hold the horse steady in either gait. They are light in weight, easy to adjust, and are fastened only loosely to the legs. The horse, when fitted with these hobboles can run without being injured in any way, but would



ELASTIC HOBBOLES.

find it awkward to do so, and the elastic would soon draw him back either to a trot or pace. It is said that they neither interfere with the motion of the limbs nor check the speed. In applying them the elastic or rubber section goes near the hind-legs, being strapped over the hip with a small strap at the center which buckles over the back strap of the harness. The strap that passes over the shoulders in front has an extension that crosses the breast. Further than this the strap runs under the body, back of the saddle, and is fastened to the shafts to hold up the center of the connections. The manufacturer sends a long list of noted horsemen who have used the hobboles and who speak highly of them. Manufactured by the Elastic Hobboles Co., No. 1024 East Front street, Davenport, Iowa.

THE HEUSTIS DETACHABLE TIRE.

WHAT is known as the Heustis patent detachable tire has one point of excellence that is so simple that it can be seen almost without description and that certainly is one that will be ap-



FIG. 1.

[This cut represents the tire in cross-section.]

preciated by all users of the pneumatic tire. That is the arrangement by which the tire when once adjusted keeps its place. It

is well known that the ordinary tire, while in use, will "creep,"—that is, will move around the circumference of the wheel,—often moving so far that the air-valve is strained and made to leak as it comes in contact with the spokes of the wheel. There are on the perimeter of the Heustis wheel a series of indentations. Corresponding to them and molded into the tire are projections that fit into these depressions and hold the tire

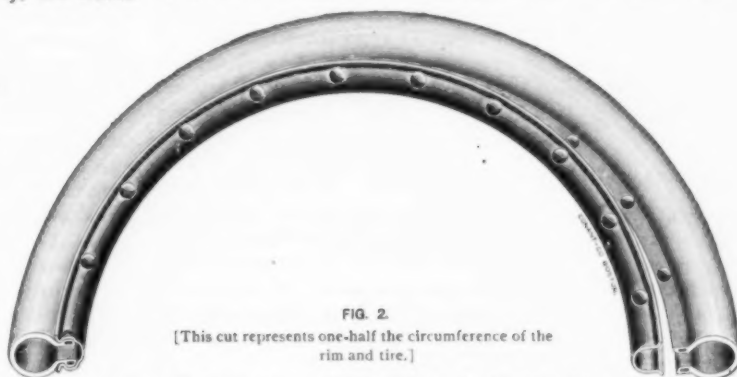


FIG. 2.

[This cut represents one-half the circumference of the rim and tire.]

solidly in place. Another point is that the tire is much lighter than many now in use, and at the same time has a decided gain in strength. It can be attached or detached in one minute. It is also said to be the only detachable tire that can be applied to the light wooden rim wheel. Figure 1, shown herewith, represents the tire in cross sections.

Figure 2 shows one-half of the circumference of the rim of the tire, the right-hand end showing the tire separated a little from the rim, and illustrates well the raised projections that hold it in place. In Figure 3 is shown the mode of withdrawing the air-tube when it is necessary to repair a puncture. Referring again to Figure 1, *A* represents the rubber shoe or tread; *B*, the canvas lining; *E*, air-tube; *D*, the light metal band; *E*, the depressions on the rim; *F*, the rubber prominences on the tire, and *G*, the rim. *E* and *F* interlock, thus securing positive attachment and preventing the tire from moving in any direction. Samples and prices supplied by the New-

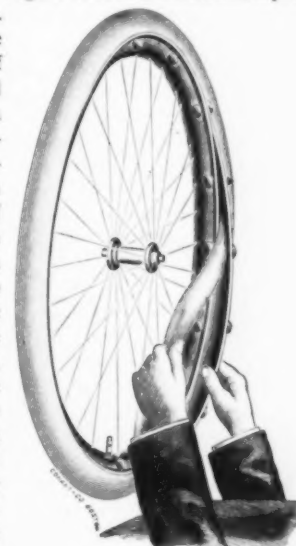


FIG. 3.

[This cut represents the mode of withdrawing the air tube to repair puncture.]

Devonshire street Boston, Mass., who are the exclusive manufacturers.

A NOVEL USE OF RUBBER TIRES.

MORGAN & WRIGHT recently completed a special order in which the pneumatic rubber tube figured prominently. Imagine a scoop, the front and side edges of which are softened by inflated rubber tubes; the back made comfortable by a row of similar tubes and the convex bottom equipped with a luxurious air-cushion. Such is the device, which has been successfully experimented with as a life-saver on the Madison street electric car line, in Chicago. The cars on this line run westward, far beyond the limits of the city proper, and on some parts of the

route annihilate space at a very high speed. Lives have been



USED IN NEW YORK.

crushed out on this line, it is stated, at the average rate of one a day and the nervousness of one of the motor-men was only natural when he was detailed to "pick up" at full speed the inventor of the scoop, which was attached to his car. A score of times he approached the man, who stood nonchalantly between the rails and each time his heart failed him and the car stopped prematurely. Once he gently bumped the inventor, who sank easily into the scoop, and who was finally caught up harm-

THE "BON TON" LADIES' MACKINTOSH.

lessly at a twenty-five-mile gait. Then employes of the company risked the embrace of the scoop and eventually the experimenting had to be stopped by the company, it having become as fascinating to the employes as tobogganing. So does cycling ramify in its benefits to the public. A better idea of the scoop may be gained by the accompanying illustration of a Pittsburgh invention, now used in New York, in which spiral springs and wire netting are used instead of inflated rubber tubes.—*Cycling Life* (Chicago).



ALL goods of the Clifton Rubber Manufacturing Co. which have been shown by specially prepared cuts from time to time in this department of THE INDIA RUBBER WORLD have attracted much attention among those who make a specialty of fine goods in ladies' mackintoshes. The illustration this month shows the "Bon Ton" ladies' mackintosh and displays the garment so effectively that a catalogue of its qualities or special excellencies is hardly needed. It may be said therefore that it is a three-cape garment, the third cape being a full military cape, and that it is made up in any style of fabric with the same attention to finish and fashion that characterizes all of their goods. Manufactured by the Clifton Rubber Manufacturing Co., Franklin street, Boston.

POLITICAL writers out West, instead of saying as in the effete East "a still hunt," characterize such tactics as "a gum shoe campaign."

THE BICYCLE-TIRE INDUSTRY.

WHAT is known as the Palmer tire has proved no less popular in Europe than in the United States. The history of this invention is remarkable in that success has followed so rapidly the first suggestion of the idea. John F. Palmer, while in charge of the bicycle department of Thomas Kane & Co., Chicago, took much interest in the repair-shop of that establishment, where he was often found experimenting. The result was a non-deflatable tire, the first rough model of which was made of hose-pipe. He resigned his position to look about for capital for the manufacture of this tire, which by the way, was speedily forthcoming. He was interested not merely in the form of the tire, but also in the best fabric obtainable. In the end he decided upon the diagonally threaded single tube. Recently Mr. Palmer wrote from England to the B. F. Goodrich Co. (Akron, Ohio), who manufacture his tires, and to those who are associated with him in Chicago, that he had formed a company composed of the directors of that powerful corporation, The India-Rubber, Gutta-Percha and Telegraph Co., the Rudge Cycle Co., and the Whitworth Cycle Co. The Palmer Tire Co., Limited, was registered on September 26 with a capital of \$150,000, in \$10 shares, to purchase from J. Fullerton Palmer, of Riverside, Ill., his patent rights for and in connection with improvements in pneumatic tires, India-rubber fabric, India-rubber tubing appliances for wheel-tires; to take from him a license to use these inventions, and to carry on the business of manufacturing and selling pneumatic and other tires, valves and wheels; and also bicycles, invalid chairs, and carriages of all kinds. The first directors are A. F. Bird, C. H. Pugh, W. Martin and C. Booth, of Birmingham; J. F. Wright, of Solihull; C. H. Gray, of Abbey Wood, Kent; and J. F. Palmer.

* * *

THE famous English house of Charles Macintosh & Co., Limited, founded in 1826 and noted for its enterprise in keeping up with the development of the rubber trade, is making a special feature now of bicycle-tires. The Messrs. Macintosh are advertising the Macintosh "detachable tire," which is reported as having proved very successful in England during the present year. The rim is slightly turned at the edges, forming a cavity in which the outer cover rests. The tire does not depend wholly upon the rim for holding it on, as the fabric on the inside of the outer cover is of the constricted principle. It is woven diagonally, and when the tire is inflated it contracts and binds itself to the rim. By this method much of the strain on the rim is done away with, and the wider rim can thus be used. Mr. J. Elton, secretary of Charles Macintosh & Co., arrived recently in the United States to arrange for the introduction here of their tires.

* * *

It is stated that Mr. Thomas B. Jeffery, of the Gormully & Jeffery Manufacturing Co. (Chicago), had taken out forty-five bicycle patents up to May 1, 1893.

* * *

ENGLAND'S national bicycle show, which is controlled by the manufacturers, as distinguished from the Stanley Club show, will be held December 1-9 at Crystal Palace, London. It is announced that twenty-five tire-manufacturers are to be represented, in addition to the large number of bicycle-manufacturers who do not make their own tires. Among the tire-firms are the Gormully & Jeffery Manufacturing Co., of Chicago, and a German firm who are subscribers to THE INDIA RUBBER WORLD,—the Sachsische-Bohmische Gummiwaaren-Fabriken Actiengesellschaft, of Dresden.

SOME NOTES ON BALATA.

SPEAKING of Balata in the United States, James Bennett Forsyth, of the Boston Belting Co., says: "The prime reason that more of it is not used in this country is on account of its price. I have for years used a little of it, and if it were cheaper could use very much more of it. The present price is from 60 to 65 cents. If I could get it down to 35 cents, where it used to be, I should consider it much more seriously as a factor in rubber-compounding. It is largely used abroad as a substitute for Gutta-percha in cable compounds, and years ago, when it was very cheap, Captain Bunker, who was a well-known Boston citizen, had a very large concession of land in British Guiana and gathered considerable Balata, all of which we took. But when the price went up we found that India-rubber at a lower price would do the work fully as well and therefore, except for special formulæ, we discontinued its use."

Henry A. Reed, secretary of the Bishop Gutta-percha Co., (New York) said: "The best Balata is a milk substance similar to India-rubber. Like Gutta-percha, it is not elastic when dry. It is cheaper than India-rubber, and will stand the weather better, but not heat. It is used in a natural state in molds and dies. Balata comes to our market in two forms—'block' and 'sheet'—of which the 'sheet' is purer, and therefore preferable. In the United States Balata is not distinguished from India-rubber as much as in England. Balata is used for insulating flexible electric-light cords. It is used clear, without any adulteration, and it does not color the wire, even after a long time. Many years ago Balata was tried for waterproofing, with no success. Vulcanizing destroys it. Balata is mixed with India-rubber to advantage in certain processes. It is better than poor Gutta-percha."

One manner in which Balata can be used by American manufacturers to considerable advantage is in a mixture with what is known as Admanta rubber. A little of the Balata imparts a toughness to the Admanta that it lacks by itself, and the Admanta counteracts the rigid tendency that the Balata possesses. A compound quoted by one manufacturer had 10 pounds Admanta to one-half pound of Balata. It took but two ounces of sulphur to accomplish vulcanization and the goods made from it are said to have been excellent. The same gentleman, speaking of other experiments that he had made with Balata and Admanta, said that he now had samples of goods nine years old as soft and perfect as when new.

THE TRENTON BATTLE MONUMENT.

THE event of the century in the history of Trenton, N. J., in the language of the local newspapers, was the dedication on October 19 of a monument to commemorate the victory gained by the Revolutionary army under command of General Washington at Trenton on December 26, 1776. Fifty years ago the New Jersey society of the Cincinnati appointed a committee for this purpose, and in 1844 the "Trenton Monument Association" was formed. It ceased to exist, however, before any results appeared. In May, 1884, the "Trenton Battle Monument Association" was chartered, and on December 26, 1891, the corner-stone of the monument was laid on the property at the junction of Pennington, Princeton, and Brunswick avenues, and Greene and Warren streets. The dedication exercises on October 19 filled an extensive program in which many persons of eminence took part. The memorial column embodies features contributed from different sources, and each of these formed the subject of one of the addresses on the program. Thus, on

the east side of the monument is a relief depicting "The Surrender of the Hessians," which took place on the outskirts of the village. Colonel Bradley's Connecticut State troops figured in the engagement, on account of which fact this tablet is presented by the people of the State of Connecticut by an act of the legislature. At the dedication ceremonies an address of presentation was made at the unveiling of this tablet by Governor Morris of Connecticut. It was received on the part of the Association in an address by the Hon. Frank A. Magowan, ex-Mayor of Trenton, and a member of the Association. A special reason for the mention of Mr. Magowan in this connection is his prominence in the rubber-manufacturing interests of Trenton, he being the president of the Trenton Rubber Co., the Eastern Rubber Manufacturing Co., and the Empire Rubber Manufacturing Co. Another rubber-man belonging to the Monument Association is Senator William H. Skirm, treasurer of the Eastern Rubber Manufacturing Co. There may be mentioned also Captain William H. Skirm, Jr., on the staff of the commander of the military procession, which also embraced Lieutenant C. Edward Murray and Captain Richard R. Whitehead, all these names being prominent in the rubber trade.

A RHENISH RUBBER FACTORY.

SOME facts of interest appear in *Kuhlow's* (Berlin) regarding the establishment of Mr. Franz Clouth, Rheinische Gummiwaarenfabrik in Cologne-Nippes, which during its existence of thirty years has achieved a high reputation for its manufactures of India-rubber and Gutta-percha. The production of supplies for paper-mills, including rolls, is a specialty of this establishment. There are also produced a full line of mechanical goods, many specialties—including bicycle-tires—and insulated wires for every purpose. Attention is called to Clouth's rubber and rubber-cotton belting and Balata and Gutta-percha belting, used in paper-mills and other large industrial establishments. The list embraces, finally, tents for army and other purposes, car-covers, and aprons. It is mentioned that the weekly output includes from six to eight big rollers for paper-mills, and from 4000 to 6000 yards of belting.

RUBBER SHOES IN CHINA.

CHINESE statistics of imports and exports are printed very promptly and are very full in details with regard to "principal" commodities, but so far India-rubber has not entered into Chinese trade to a sufficient extent to be noted separately. Of the very many custom-houses in that country the only one from which definite returns of rubber are made in the quarterly reports is that of Kowloon, established April 2, 1887. The imports of India-rubber shoes at that point have since been as follows, the blanks in the table representing periods for which such goods were not entered under a separate heading. The figures relate to pairs of shoes:

YEAR.	Jan.- March.	April.- June.	July.- Sept.	Oct.- Dec.	Total.
1887	none.	2,265	328	898	3,491
1888	10,950	4,294	808	4,473	20,525
1889	5,373	2,460	2,384	1,205	11,422
1890	3,714	3,379	3,428	.....	.....
1891	6,470	830	.....	.....	.....
1892	13,759	3,063	.....	.....	.....
1893	14,685	.....	.....	.....	.....

From the United States treasury reports it would appear that our share in China's rubber-shoe trade is small; at least only 233 pairs are charged to that country for the fiscal year ended July 30, 1892.

BRAZILIAN RUBBER STATISTICS.

ACCORDING to the *South American Journal*, during the year 1891-92 the export of rubber from the State of Amazonas amounted to 8,422,103 kilograms, the official value of which was 30,698,206 milreis, on which the export duties amounted to 5,232,271 milreis. In the succeeding year ending June 30, 1893 the exports amounted to 9,180,516 kilograms, officially valued at 39,823,090 milreis, and paying 6,867,701 milreis in duties. In instituting comparisons with preceding years it should not be forgotten that rubber is sold for gold and that local values increase correspondingly with the depreciation in the national currency. As duties are levied *ad valorem*, they also increase with the same depreciation.

The same authority says: The exports of rubber from Bolivia and Peru by way of the Amazon during the half-year ending June 30 last amounted to 986,310 kilograms, of which 858,437 kilograms came from Peru.

THE INDIA RUBBER WORLD is advised by Messrs. Norton & Co., of Pará: "From the Beni region we receive at the present time very little rubber, which is of very good quality. The year's supply does not pass 50-75 tons. From Iquitos (Peru) all caucho shipped from here is imported, but very little rubber."

A late work, "The State of Pará," mentions the following movement from the port of Pará of rubber originating in other countries than Brazil, the figures expressing kilograms:

	In 1890.	In 1891.
From Peru.....	1,163,909	701,585
From Bolivia.....	432,548	502,481
From Venezuela.....	7,976	3,775
Total.....	1,604,433	1,207,841
Total expressed in pounds.....	3,529,752	2,657,250

From Norton & Co.'s Pará rubber statistics the following table has been compiled, showing the movement (in pounds) at that port for the present year, up to the end of September:

MONTH.	ARRIVALS.	SHIPMENTS.		
		United States.	Europe.	Total.
Stock.....	1,707,200	.....	.....	.....
January.....	3,300,000	2,202,200	1,386,000	3,588,200
February.....	6,000,000	2,620,200	748,000	3,368,200
March.....	4,840,000	4,015,000	1,738,000	5,753,000
April	2,365,000	2,413,400	1,504,800	3,918,200
May.....	1,826,000	1,544,400	1,126,400	2,670,800
June.....	1,914,000	1,091,200	1,091,200	2,182,400
July.....	1,980,000	959,200	1,069,200	2,028,400
August.....	2,640,000	1,062,600	1,216,600	2,279,200
September.....	2,970,000	1,555,400	1,744,600	3,300,000
Totals... ..	30,142,200	17,463,600	11,624,800	29,088,400
	29,088,400			
Stock.....	1,053,800			

A PROPHET OF RUBBER WEATHER.

AMONG the "four hundred" it is said to be bad form to discuss the weather. That rule, however, has no weight with the rubber-men. Rainy weather means a good trade in rubber clothing; mud, snow, and slush increase the sale of rubber boots and shoes; while hot, dry weather in spring and summer makes an ideal hose season. Thus it happens that rubber-manufacturers in this and kindred lines are constantly looking ahead and questioning the future as to their chances for next week's or next month's trade. This feeling also extends to the jobbers and retailers of rubber goods. It will, therefore, interest these people to learn that a prophet has arisen who will foretell

the weather for this trade especially, and who, however he may do it, hits very near the mark in his predictions. The *New York World* thus chronicles his advent in rubber circles:

When Prof. Andrew Jackson De Voe, the weather prophet, asked to be given a position in the Weather Bureau at Washington, two years ago, Chief Harrington informed him that his weather predictions were not first-class. Prof. De Voe was angry. He claimed that within five years a syndicate would be formed which would control the weather forecasts which the Government could not buy for \$100,000. Prof. De Voe has informed a *World* reporter that he had been engaged to organize such a syndicate. He said he had received an offer from the Commonwealth Rubber Co. of New York, for the exclusive right to publish weather forecasts made by him for New York, Brooklyn, Jersey City, and Hoboken.

"I simply told the members of the rubber company," said Prof. De Voe, "that the coming winter would be a splendid season for their business. They jumped at my weather predictions. The coming winter will be a severe one, and those out of work in New York at present will suffer intensely unless relief comes to them."

The Commonwealth Rubber Co., finding that the predictions were remarkably well received in and around New York, made haste to secure the rights to use them for the whole United States. They now offer those rights in various cities to a leading firm in each through the following letter:

We have secured control of the weather predictions, made by one of the most prominent weather prophets in the United States for one year, for all the principal cities in the United States. This gentleman assures us that 80 per cent. of his predictions are found to be correct, and is willing to refund the money if they are not so. We do not guarantee this point, however, but as an advertising medium we feel that we are amply repaid in the matter, by the results of its use as an advertising purpose, which we deem fully equal to the calendar now so largely in use. It is our purpose to use this information in our own interest in New York City, Brooklyn, Jersey City, and Hoboken, by sending them at the first of each month to our regular customers, and to such new trade as we desire to reach, placing upon the card or circular with the predictions, such printed matter as we may deem necessary.

We have the predictions and the circular for each month printed at one time, for the entire year, as a matter of economy. Do you wish control of the predictions in your city for one year, to be furnished you, and you alone? The terms are \$5 per month. Payment six months in advance.

The prominence of your house warrants our making you the first offer, which we would ask that you decline or accept at your early convenience. The size, shape and detail of the printed matter is entirely a matter of your own. We simply furnish the predictions.

In the advertisement of the Commonwealth Rubber Co. in this number of THE INDIA RUBBER WORLD may be found Prof. Devoe's predictions for one month, beginning with November 15.

RUBBER FOOTWEAR IN PERSIA.

PERSIA, as a market for rubber overshoes, is not generally known; yet Persian ladies buy them largely, preferring high-class quality to lowness of price, whilst men's goods also find a sale. It sounds odd, however, that these should be worn next the feet, and not as overshoes. Russian and German makes are well known, but the call is for the better classes. The excellent manufactures of American make in these lines appear thus far to be unknown in Persia.—*Shoe and Leather Facts*.

A NOVELTY in England for ladies with a taste for horticulture is a small wheelbarrow, having two wheels with rubber tires. The utility of such a tire is not stated, except that there is a tendency now that way.

A NEW MECHANICAL-GOODS COMPANY.

ANNOUNCEMENT is made of the incorporation, under the laws of New Jersey, on October 30, of the Manhattan Rubber Manufacturing Co., with a capital stock of \$150,000. The incorporators are Peter Reid, of the large print-works of the Reid & Barry Co., Passaic, N. J.; Samuel Watson, of the Watson Machine Co., one of the largest machine-shops and foundries in Paterson, N. J. Frank Cazenove Jones, up to September a director and manager of factories of the New York Belting and Packing Co., Limited; W. W. Dashiell, of W. W. Dashiell & Co., Nos. 2-4 Stone street, New York, lubricating oils and machinery supplies; A. F. Townsend, up to November 1 in charge of the New York sales of the New York Belting and Packing Co., Limited, and George Woffenden, up to September 1 superintendent of the Passaic factory of the New York Belting and Packing Co., Limited, and in the employment of that company for more than thirty years. On November 1 Mr. Jones was elected president and general manager and Mr. Townsend secretary and treasurer. The directory includes besides these gentlemen Messrs. Watson, Dashiell and Woffenden. The latter will be superintendent of factories. The company have control of the building No. 64 Cortlandt street, for five years and are fitting it up for their New York offices and warehouse. This is one of the best locations in New York for a mechanical rubber-goods business, being in the center of the machinery district, accessible to the elevated roads, and on the line of the largest ferry to New Jersey. The company will manufacture all kinds of mechanical rubber goods, including belting, packing, hose, emery-wheels, and bicycle-tires, and will make a specialty of molded goods, for turning out which its facilities will not be excelled by any company in the world.

The plant at Passaic, N. J., which is now about completed, consists of a main building 223x53 feet, two stories high, with an attic, a boiler-house 38x42 feet, and a brick stack 100 feet high. The storehouse is 68x42 feet and between it and the main mill runs a switch from the Delaware, Lackawanna and Western railroad. There are, besides, pump-houses, blacksmith-shop, etc. There will be a boiler-plant of 400 horsepower and a large Corliss engine of 300 horse-power. The company are now moving into the factory and expect to begin manufacturing rubber goods in December.

Julius Kahn, who long has been prominent in the rubber trade, will be selling-agent of the new company, with headquarters at No. 64 Cortlandt street.

A REMARKABLE EVENT.

ONE of the pleasantest and at the same time one of the most remarkable events that has fallen lately to the lot of a trade-journal to record, was recently celebrated by the officers and employés of the New York Rubber Co. On October 25 Mr. John P. Rider rounded out a service of thirty years in the continuous employment of the company; and in order to properly commemorate the event, he tendered to his fellow officers and the employés of the company a little informal dinner party, which was given at the "Dutch Delmonico" restaurant, corner of Chambers and Church streets. There were twenty-one persons seated at the table, of which nineteen are now connected with the company; and the remarkable feature of the occasion is the fact that the engagements of ten of those present in the continuous service of the company, aggregated no less than 285 years, as follows: William H. Acken, president and treasurer, 26 years; John P. Rider, vice-president, 30 years; Rufus A.

Brown, secretary, 24; James R. Bird, salesman, 29; George C. Smith, superintendent fancy-goods department, 32; Thomas S. Judson, superintendent mechanical-goods department, 35; P. F. Barnum, cashier, 28; W. W. Jones, bookkeeper, 21; Martin H. Reed, truckman, 32; Joseph Stockley, porter, 28. Each of these engagements, it will be observed, has exceeded twenty years, and in four instances thirty years. Now if we add to these Mr. Charles S. Sanxay, salesman, 15 years, Richard C. Proctor, shipping-clerk, 18, and Price Ramford, porter, 15, we have a total service of 324 years for but thirteen officers and employés.

It is altogether probable that no such record has ever been equaled in the history of the rubber industry. In the long-established industries of Great Britain, events of this kind are sometimes recorded, but even in the staple lines of manufacture in the United States it is not often that we hear of such an occurrence. Our commercial and industrial conditions are subject to such frequent and violent changes, and throughout every industry our development has been characterized by growth and expansion so phenomenally rapid and great as compared with European standards, that the entire personnel of even our oldest manufacturing concerns frequently change. This is conspicuously true of the rubber industry; and owing to the advance that has been made in methods of manufacture, and the tremendous strides which America has made in competition with the older countries, it has been the rule to record very frequent changes. Under such circumstances the history of the New York Rubber Co., as disclosed in this pleasant little social event, speaks volumes for the even temper, sound good judgment, and efficient service which have characterized both the management of the company and the conduct of their employés. The regularity with which the company has paid its dividends throughout all these years, and the high estimate in which its stock is held by its owners, and the place which the products of the company hold in the estimation of the trade all over the United States, are speaking testimonials to the capacity of these men, who in harmonious coöperation have carried forward the great work through so many years.

Gentlemen, THE INDIA RUBBER WORLD extends its heartiest congratulations! May you live to enjoy many more decades of continuous prosperity, in association with each other.

WHEN GUTTA-PERCHA SHOES WERE MADE.

GUTTA-PERCHA soles were used on boots quite extensively forty years ago. They were stiff and unyielding, but notwithstanding that, they would have been popular only for the fact that they were excessively cold in winter. It seemed almost impossible to warm them through. There used to be a factory in Glasgow, Scotland, where some two thousand pairs of these shoes were made daily. It was a very different shoe that the "souters," or shoemakers, of Selkirk fashioned in the olden times. They made a "single-soled shoon." The purchaser reinforced them by sewing or nailing on another sole. The "souters of Selkirk" achieved immortality in verse by bravely aiding James IV. at the battle of Flodden Field. The seal of the Burgess of Selkirk had a bunch of shoemakers' bristles attached. The new-made Burgess dipped them in his wine, and then passed them through his lips as a token of respect.

AN ADDRESS WANTED.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Can you give me the address of any party or parties manufacturing hyposulphite of lead? Very truly yours, G. F.
New York, October 3, 1893.

RUBBER SALESMEN ON AND OFF THE ROAD.

IT might be said that David R. Westervelt is one of the landmarks of the Goodyear Rubber Co. (New York). Mr. Westervelt has had nearly twenty years' experience in the rubber business and during all that time he has been with the same company, having worked his way from the bottom to the top as a salesman. Mr. Westervelt was educated in New York city. At once upon his graduation, in June, 1875, he secured a position with the Goodyear company, and spent four years at a desk at No. 487 Broadway. Then he was put upon the floor as general salesman, and his success in this position with the large general line carried by his company, was the cause of his having a trial at the road. His maiden trip was a success, to a near-by city, and he was at once offered a regular route. During his long connection, he has been over all the territory belonging to the New York house, which embraces all of the leading cities, from Maine to Texas. For the past eight years he has been working Pittsburgh, Cincinnati, and the South, and, it is needless to say, he is one of the best known



D. R. WESTERVELT.

and most active salesmen in his territory. Mr. Westervelt is an At, all-round general salesman, and can sell anything in the line. He is especially well known in the Cincinnati market, with the large carriage-makers' trade, to which he sells a large quantity of rubber drills and duck. He has sold everything that has been made in rubber goods for the past eighteen years, and was one of the first men on the road to introduce to the public one of the Goodyear Rubber Co.'s successful novelties at the time, the "Ottoman" coat, which was a single-texture mackintosh, with a velvet collar, and was practically the forerunner of the large line of single textures that followed it. Mr. Westervelt has a large trade among the jobbers and retailers on his route, also many good friends in the buyers. His business relations with the Goodyear Rubber Co. from the very start, have been of the most pleasant nature, and he is a firm

believer in the reliability of the "Gold Seal Brand." When not on the road, Mr. Westervelt resides at Clifton, N. J. He is unmarried.

* * *

EDWARD LANDSTREET, well remembered as having been with the late firm of Towner, Landstreet & Co., was in Chicago doing the Fair during its last two weeks. While there Mr. Landstreet had the pleasure of meeting many of his old friends from Baltimore and New York. Mr. Landstreet has lived for several years in Memphis, Tenn., where he is connected with the well-known rubber house of that city, Messrs. Towner & Co.

—St. Louis is not so often heard of in the east as some of the other great cities of the Union, in a rubber sense. Yet the "Mound city" is a very great distributing point for everything in rubber goods,—much greater, in fact, than most of our readers are aware. The concerns giving the most attention to the general rubber business are the Day Rubber Co., Saunders Duck and Rubber Co., and the Goodyear Rubber Co. All the mechanical-goods manufacturers are represented, and the city is also an enormous market for rubber footwear.

—Lewis Miller, so well-known in Virginia and West Virginia, is working his way back homeward, after a good trip, with the popular "Seal brand" mackintosh, of Messrs. Boyd, Jones & Co. (Baltimore).

—The city of Memphis, Tenn., has perhaps more perforated rubber mats in use than any other city in the country of its size. Much of this is due to the persistent efforts of George Towner, who keeps at the restaurants, hotels and public buildings until they are all supplied with mats and rubber matting. Messrs. Towner & Co., with whom Mr. George Towner is employed, have practically their entire floor, in the front of their store, covered with large mats, which are lettered, thus making an excellent advertisement.

—William Swarbacker, buyer for Bamberger, Bloom & Co., of Louisville, Ky., is a great favorite with the visiting rubber salesmen. Mr. Swarbacker is a liberal buyer, and always helps his friends out if possible, with an order. He is very often in New York, where he is well known and has many friends.

—Contracts for carriage cloths are being placed now, but there is a disposition to go slow, on the part of both buyers and sellers. The West has been pretty well drummed recently by salesmen representing the Boston Rubber Co., Goodyear Rubber Co., Cable Rubber Co., Empire Rubber Co., and Chase & Co., all of whom give special attention to this very large item in the rubber business.

—Among the best posted persons in a selling capacity, as well as in a general knowledge of every department of the rubber business, is Miss Annie McCollin, of the Day Rubber Co. (St. Louis). Miss McCollin has a wonderful record, having been with the Day Rubber Co. for eleven years, and only having missed five days by sickness. She does not confine herself to waiting on lady customers only, but can sell a bill of belting or price a bill of clothing as well as she can sell a lady's mackintosh.

—James A. Wilson, of the Housatonic Rubber Co. (Bridgeport), was a recent visitor at THE INDIA RUBBER WORLD'S office and reported business in his line as fair.

—George Simpson, who sued the New York Rubber Co. in the Circuit Court at Poughkeepsie, N. Y., for \$20,000, damages for injuries received in the company's factory, received a verdict for \$5000.

TRADE AND PERSONAL NOTES.

REGARDING the rumor that Emmett A. Saunders, general superintendent of the United States Rubber Co., was no longer connected with the company in that capacity, Mr. Saunders advises the INDIA RUBBER WORLD: "In the perfected organization of the United States Rubber Co. there will be no general superintendent, as there was in the provisional organization. What duties of that position do not revert to the local superintendent will be accepted by the general manager. My connection with the United States Rubber Co. has not terminated, although the details of future relations have not been definitely decided upon."

—The Peerless Rubber Manufacturing Co. are replacing all of the frame buildings at their factory-plant in New Durham, N. J., with brick buildings, and have also added a new thirty-foot belt press built by the Farrel Foundry and Machine Co. (Ansonia, Conn.)

—F. A. Winchell, for a number of years connected with the Crane Company (Chicago) as auditor, has become associated with the New York Belting and Packing Co., Limited, No. 13 Park row, New York, as manager of their sales department. Mr. Winchell is possessed of rare executive and business ability and is popularly known in the machinery trade, where he has acquired a host of friends.

—A movement to establish a rubber factory at St. Johnsbury, Vt., is reported by the *Republican* of that city to be in progress. An experienced rubber-manufacturer is said to be planning an establishment sufficient to give employment to 500 hands, and he will locate in St. Johnsbury if the citizens of that place will take enough shares in the stock company that he is trying to organize.

—The export of India-rubber from Madagascar to the United States during the year ending August 12, 1893, amounted to 158,879 pounds, of the value of \$113,658.58. In reporting these figures, United States Consul John L. Waller, stationed at Tamatave, adds that they do not include the large shipments of rubber from Vatromandry and Mananzary, the amount of which he was unable to ascertain.

—E. F. Bigoney, who has an interest in a Pennsylvania talcmine, is showing some very fine samples to the rubber trade and taking good orders.

—The Elastic Fabric Co., at Newport, have become a corporation under the laws of Rhode Island, with \$100,000 capital. Patrick H. Morgan is president; Jeremiah J. Lynch, vice-president; N. James De Blois, secretary; and Edward F. O'Brien, treasurer and manager. The directory includes, besides the above names, M. S. Horgan, M. A. McCormick, and J. D. Horgan.

—The plant formerly operated by the Pará Rubber Shoe Co., at South Framingham, Mass., after being idle for more than two years, has been started by the new owners, the Hickory Wheel Co. Steam was started on October 9, when fifty men began work. The force will be added to as the different departments are organized.

—A new steel steamer, the *Capac*, arrived in the port of New York on October 27 to be used by W. R. Grace & Co. in the South American trade. She is of 3500 tons register and was built at Sunderland, England. Doubtless the new steamer will bring rubber from numerous ports to New York.

—Fire in a storage warehouse at Des Moines, Iowa, damaged goods belonging to the American Rubber Co. to the extent, as reported in the *Free Press*, of \$10,000. Their stock carried \$20,000 insurance.

—The shipments from the factory of the Boston Rubber Co. during September, according to the Franklin (Mass.) *Sentinel*, were the largest for any month in the history of the company.

—The Goodyear Rubber Co. have lately become established in a new store at Portland, Ore., at Nos. 73-75 First street. The stock embraces footwear, clothing, mechanical goods, and druggists' sundries.

—The firm of Morgan & Wright, rubber-tire manufacturers at Chicago, has become a corporation under the laws of Illinois, with \$100,000 capital. The incorporators are Fred. W. Morgan, Rufus Wright, and Mary A. Morgan.

—The Hamburg-American liner *Gellert*, which arrived at New York on October 27 with fire on board, had a cargo of miscellaneous merchandise, including 75 cases of India-rubber consigned to Baring Brothers & Co., 6 casks of India-rubber "to order," and one package of merchandise for the Mineralized Rubber Co.

—Judgment for \$6171 was entered in the New York County Court October 27 against the Chemical Rubber Co., in favor of N. Chapman Mitchell, on a note for services rendered. Similar judgments on two notes aggregating \$3524 were filed on July 12.

—So many have inquired if it is true that E. F. Bickford has retired from the superintendency of the Boston Rubber Shoe factory No. 1 that perhaps it is well to state that the rumor is entirely without foundation, and originated in a carelessly written newspaper article.

—The Conant Rubber Co. (Boston) have moved from No. 72 Federal street to No. 20 Summer street,—in fact right into the heart of the retail district.

—The Eastern Rubber Manufacturing Co. (Trenton, N. J.) are putting an addition to their plant in the shape of a building 140x80 feet and two stories in height. It will be used for work on bicycle-tires. They are also putting in three boilers made by John E. Thropp, of Trenton.

—The Harburg Rubber Comb Co., of Harburg, Germany, send to THE INDIA RUBBER WORLD a beautiful business card made of a thin flexible sheet of vulcanite, with the business address printed in gold letters,—a card which is not likely to be consigned to the waste-basket.

—The threat that, as leather is cheaper this year than ever before, and as rubber boots are higher, the leather boot would drive the rubber boot out of the market, does not seem to have been fulfilled. All the rubber-boot factories are running up to their fullest capacity, and many orders are being "turned down" because it is impossible to fill them.

—The first steel vessel ever built in Ulster county, N. Y., was launched at Kingston on November 4—the *Orinoco*, built for Thebaud Brothers, of New York city, for the freight and passenger trade on the Amazon river. She is 70 feet long and 15 feet beam; has a gross tonnage of 56 tons, and draws less than four feet of water. She has twin screws and can carry sail if necessary.

—The Berlin Iron Bridge Co. (East Berlin, Conn.) report orders from the New Home Sewing Machine Co. (Orange, Mass.) for a new foundry-room, 45x120 feet; from the Philadelphia Traction Co. for a new power-house, 190x168 feet; from the East River Gas Co. for a new water-house, of iron, brick, and glass; for a sugar-house at Tampa, Fla., 60x125 feet; for a new draw-bridge at Salem, Mass.; and for a fireproof store-house for the New York Knife Co. (Walden, N. Y.) 28x100 feet. All of these are to be of iron construction.

—Manager Leuitweiller, of the Sewing Machine Supplies Co. (Boston), has just returned from a trip to Europe.

—A. Randolph has returned from Europe, where he spent several months in the interests of the New York Commercial Co.

—The Gleason & Bailey Manufacturing Co. (Seneca Falls, N. Y.) are building two hose-reels for Greensboro, Ala. They have secured contracts for a steel-frame hook-and-ladder truck for Darlington, S. C., a two-horse hose-wagon for Johnstown, Pa., a hose-carriage for Mayfield, Pa., and a "city size" steel hook-and-ladder truck for Tottenville, N. Y.

—The Monarch Rubber Co. (Campello, Mass.), organized last year by J. Thomas Robinson and L. E. Niles, have reorganized as a corporation under the laws of Massachusetts, with a capital of \$20,000 for carrying on the rubber-cloth business on a larger scale. The directors are: William T. Rapp (president), Ziba C. Keith (treasurer), J. T. Robinson (manager), Dr. N. C. King (clerk), E. A. St. John, T. W. Pope, and George W. Greeley.

—The exhibit of Louis Wertheim (Frankfort o/M., Germany) at the World's Fair embraced asbestos goods for firemen's use, including a fireman in full fireproof outfit, a fireproof theater, fireproof ropes and ladders, and fireproof wall-paper, and also asbestos goods for electrical purposes, and for the use of chemical works.

—According to Mr. Emerson, of the Emerson Rubber Works (Boston), the factory is running and orders are good.

—Postmaster Sullivan, of Brooklyn, has notified the government that he is opposed to the introduction of bicycles in the letter-carriers' department. He says that there is not a sufficient mileage of smoothly-paved streets to make wheels available, and thinks the expense would be as great to the government as that spent in car-fares.

—The Canadian Rubber Co. of Montreal are building a warehouse in connection with their branch establishment at Winnipeg. The firm advise THE INDIA RUBBER WORLD that the cost will be \$20,000, including land. The London *Advertiser* mentions S. F. Peters as the architect.

—The Boston Belting Co. lately received an order for three hundred feet of belting seventy-six inches wide. This is the champion width in belts.

—The Peerless Rubber Manufacturing Co. (of New York) have made arrangements with Charles Churchill & Co., of London and Birmingham, England, to have the exclusive agency of their goods. The new agents are really an American house, having been established in Great Britain for a number of years. These people not only take the agency but they have placed very large orders for "Eclipse" gaskets, and "Peerless" and "Rainbow" packing. It will interest those who are looking into the export business to know that the Peerless company are having orders for steel-clad suction-hose for fire-department and mining use from Germany, Denmark, and England.

—C. J. Bailey, of Boston, had his exhibit at the World's Fair dismantled on the first day of November, and the goods were in the storehouse in Boston on the third day.

—Alfred Hale, No. 30 School street, Boston, has received two patents for rubber-lined air-mattresses,—one on the valve and the other on the manner of staying the mattress.

—Eben Paine, sales-agent for the American Rubber Co., has just returned from a trip to Chicago, St. Paul, St. Louis, Louisville, and Cincinnati. He reports business as exceedingly brisk and says that all the jobbers are laying in goods as fast as they can get them.

—Hudnut, the well-known Broadway druggist, in New York, has put in a stock of \$12,000 worth of fine French atomizers.

—A. H. Lyman, of the Western Rubber and Belting Co. (Chicago), has accepted a position to travel for the Globe Rubber Co. (Trenton, N. J.).

—Henry F. Knowles, manager of the Globe Rubber Works (Boston), showed a representative of THE INDIA RUBBER WORLD a list of his sales for a year, ending with October, and every month showed a decided increase over the corresponding months in 1892, which does not look as if the rubber business was suffering from the late depression as much as some other lines.

—Mrs. Charles T. Wood has accepted a position with the Stoughton Rubber Co. and will have charge of the clothing in the ladies' department of their Summer-street store. The rubber store at No. 197 Tremont street, Boston, which Mrs. Wood established, will be run by her son, Mr. E. C. Wood, who has lately returned from Colorado.

—The Long Island Rubber Co., manufacturers of specialties at Long Island City, are reported as doing a nice business, with sales rapidly increasing this fall.

—Ellis & Goltermann (New York) have in addition to their line of fine imported atomizers put in a line of regular goods which they are selling to the trade.

—A man calling himself a note-broker called at the office of the Norfolk Rubber Co. (Boston) recently and wished to exchange a \$1000 note for mackintoshes. The note was drawn on Kneeland & Co., New York, and signed by Henry Kneeland. Treasurer Eustis found a concern of that name in the Produce Exchange which had a very high rating and was well known. At the same time the note was made payable at No. 52 Broad street, New York, where he found that another Kneeland & Co. with no special rating had an office and this latter company were the issuers of the note. Report has it that several lots of goods, not in the rubber line however, have been shipped to New York on just such notes. Treasurer Eustis refused point-blank to sell mackintoshes that way.

—Regarding the rumor that a large rubber-mill was to be started in New Bedford, Mr. C. S. Knowles of Arch street, Boston, who resides in New Bedford, says it is altogether unlikely that a mill will be started there, chiefly because of the position that the Old Colony railroad take with regard to making New Bedford a billing point to the west. It has many times been requested by citizens of New Bedford that this be done, but the railroad has up to this time turned a deaf ear to all such requests. Aside from this, New Bedford would be an ideal place for a rubber factory,—help is cheap, there is a daily line of steamers to New York, and freight rates by water are low.

—Judges appointed by the officials at the World's Fair at Chicago have made awards to the Joseph Dixon Crucible Co. (Jersey City, N. J.), for superior products in graphite, lead pencils, plumbago, crucibles, black-lead stopples and nozzles, dippers, bowls, foundry-facings, and lubricating graphite.

—An award was made at the World's Fair to A. A. Marks (New York), manufacturer of artificial limbs with rubber hands and feet.

—T. & S. C. White, of New York, received an award at the World's Fair for their exhibit of sulphur.

—The Okonite Co., Limited (No. 13 Park row, New York), report business good in their popular insulating compound.

TRADE PUBLICATIONS.

THE Tyer Rubber Co. (Andover, Mass.) send out an attractive illustrated price-list of 84 pages, which is strikingly complete in the line of druggists' and surgical rubber goods, and specialties of kindred classes. The index alone fills three pages, indicating a large variety of products.

—The Hyde Manufacturing Co. (Southbridge, Mass.) have issued a catalogue of shoe-knives and extension blades, including some articles of interest to the rubber-manufacturer, including Hyde's patent adjustable-jaw stem-winder knife-blade holders for the use of cutters of leather, cloth, and rubber.

—The Harburg Rubber Co. (Dr. H. Traun, proprietor) with factories at Hamburg and Harburg a/d Elbe, Germany, send us a price-list of their goods, including the "Olive Doré" combs, of which they make a specialty. They claim to be the largest manufacturers in the world of hard-rubber goods, giving employment to between 800 and 900 hands in making hard rubber alone. They have an office and salesroom at No. 335 Broadway, New York. Dr. Traun is also proprietor of the Excelsior Rubber Works, manufacturers of dental and stamp rubber, at College Point, L. I., with offices at the same number on Broadway.

—The Eastern Rubber Manufacturing Co. (Trenton, N. J.) issue a special catalogue devoted to their rubber-tire trade, and giving illustrations of the various details in the construction of their tires for which claims of excellence are made. Their brands of tires are the "Climax," "Gem," "Sweetwood," and "Cyclone."

PERSONAL MENTION.

MR. ROBERT D. EVENS, president of the American Rubber Co., and vice-president of the United States Rubber Co., whose business last winter led him to make his home in New York city, has reopened his handsome residence on Commonwealth avenue, Boston, for the winter.

—The many friends of William P. Hayes, manager of the Trenton Rubber Co. will learn with regret of the death of his mother, which took place on the 2d instant.

—Hon. Frank A. Magowan is building a fine house in Trenton for a winter residence. It is said that it will cost when completed \$175,000.

—Mr. Augustus O. Bourn, a former governor of Rhode Island, has returned from Rome, where he was for some time United States consul-general. He visited New York recently, and testified in the suit of the Chemical Rubber Co. v. the Goodyear Metallic Rubber Shoe Co.

—Mr. Frank Tyler Carlton, of the Tyer Rubber Co. (Andover, Mass.), was recently married to Miss Mary B. Whitlock, of Huntingdon, Ind.

—Mr. James A. Cross, manager of the Fall River Rubber Co., is among the many young rubber men who have recently been married.

—Mr. Thomas P. Himes, manager of the Hope Rubber Co. (Providence, R. I.), was recently married to Miss Lucy E. Hanson, of the same city.

VISITORS to Margate, Broadstairs, and Ramsgate, on the east coast of England, noticed during the past summer a novel adaptation of rubber in pleasures of bathing. Little children would go down under the cliffs, disrobe, and after rolling their clothing into a small bundle, don a rubber trunk somewhat close-fitting and also having elastic bands at the top, around the waist and each of the lower limbs. These trunks are tastefully got up in white, black, and red, and the sight of hundreds of these little sprites clothed in that manner makes a charming view. The lads and lassies go down in the morning and wade in the North sea all day. The rubber sheds the water naturally when it is wet, and in this way the children dry quickly when they choose to play in the sand at times.

It is announced that Dr. Assis Brazil will be appointed ambassador for Brazil to China.

HODGMAN'S LATEST.

THE readers of THE INDIA RUBBER WORLD cannot fail to note the striking illustration which we give in this issue of what is very aptly termed "Hodgman's Latest." It will be instantly recognized as the application of an altogether new idea in mackintosh manufacture. Driving-coats have long been indispensable to the fully-equipped wardrobe of a New York swell, and the increase in their use among fashionable gentlemen in America has probably made more progress in the last year than is to be noted in any fashion which we have taken from the mother country. With their accustomed enterprise in adapting their garments to the very latest style in every feature of apparel, the Hodgman Rubber Co. have now made a departure in manufacturing a regular line of these driving-coats, and the engraving is intended to represent two patterns which they have lately introduced on the market. The front view represents a very handsome high-priced coat made of white drab broadcloth, with a broad velvet collar and large pearl buttons. The back view is representative of the same coat made in a mixed fabric, which makes a very handsome appearance, but a coat which sells at a much less price, and a coat also which is suitable for walking or any general use. These garments are, in fact, marvels in the art of mackintosh manufacture. The close observation of an experienced tailor would be necessary to recognize that they were mackintosh goods, so perfect is the work in every detail, and so soft and flexible is the rubber between the cloths, and so entirely free from odor. While the Messrs. Hodgman are to be credited with the artistic effect of the garments themselves, we are prompted by the excellence of the work to compliment the artist upon the excellent rendering which he has given.

HOW TO ADVERTISE SUCCESSFULLY.

OUR manufacturers have had an opportunity during the recent period of quietness in trade to look more closely than usual into the condition of their business affairs, and doubtless many of them are better prepared to start in with the revival in business better equipped than ever to win that favor and patronage which all desire. Of course the item of advertising is not to be overlooked, but there are many busy men who, while recognizing the necessity of advertising, do not see their way clear to give it the time and attention upon which its value largely depends. It is with a view to assisting this class that the Manufacturers' Advertising Bureau and Press Agency (No. 111 Liberty street, New York) was established a number of years ago by Mr. Benj. R. Western, a veteran in trade-journalism and an expert in all matters relating to trade-journal advertising. Its purpose is to take the entire charge of the newspaper work and advertising department of large manufacturers, giving them the benefit of a long experience in such matters. Mr. Western still gives his personal attention to the interests of his clients, and, aided by an efficient corps of co-workers, conducts their advertising in such a manner that it well deserves to be termed an art. Among the large concerns numbered in the list of patrons of this concern are the New York Belting and Packing Co., Limited, the Okonite Co., Limited, the Farrel Foundry and Machine Co. (Ansonia, Conn.), the Western Electrical Instrument Co. (Newark, N. J.), and a large number of others which have long been its patrons. This agency enjoys pleasant business relations with trade-journals at home and abroad and places a larger amount of advertising in journals of this class than any other advertising agency.

THE UNITED STATES RUBBER COMPANY.

At a meeting of the directors of the United States Rubber Co. in New York October 25 it was decided to declare a dividend of 5% per cent. January 1 for eight months on the preferred stock, this to take the place of the semi-annual 4 per cent. dividend November 1, and hereafter the semi-annual dividends will be declared January 1 and July 1, instead of May and November. "This change is advisable," says an official of the company, "as we collect most of our money from November to January. The company were never in better shape than now, as the combined companies are 200,000 cases behind on their orders, on account of orders being held back early in the season."

The quotations which follow represent the daily transactions in Rubber stocks on the New York Stock Exchange for each business day since the last report printed in this journal:

DATES.	COMMON.			PREFERRED.		
	Shares.	High.	Low.	Shares.	High.	Low.
October 10....	100	30	30	....	....	....
October 11....	150	30	30	....	....	....
October 12....	100	31½	31½	107	75	75
October 13....	560	30½	29¾	....	....	....
October 14....	....	....	....	....	....	....
October 16....	....	....	....	....	....	....
October 17....	....	....	....	25	80	80
October 18....	....	....	....	110	78	78
October 19....	312	32	31	350	77	76
October 20....	....	....	....	21	75	75
October 21....	....	....	....	....	....	....
October 23....	356	33	31½	610	77	75
October 24....	220	31½	31	....	....	....
October 25....	150	32½	32½	....	....	....
October 26....	350	35¾	33	308	85	85
October 27....	825	40½	38	355	89½	85½
October 28....	....	....	....	200	88	88
October 30....	475	45	44½	....	....	....
October 31....	470	43½	42	25	88	88
November 1....	100	44	44	100	88½	88½
November 2....	530	44½	44	200	88	88
November 3....	100	42½	42½	100	87¾	87¾
November 4....	....	....	....	185	86½	86½
November 6....	350	41	40	150	85½	85½
November 8....	389	40	40	144	85	85
November 9....	150	40	40	150	83½	83½
November 10....	....	....	....	....	....	....
November....	31,208	44	38¾	....	....	....
December....	15,943	48	39	2,607	99	94½
January....	9,604	47¾	42½	5,521	99	94
February....	7,024	46¾	43	1,333	97	92½
March....	30,438	58½	42	3,938	99	93
April....	25,625	60½	53¾	3,251	99½	94¾
May....	24,999	57½	33	4,835	91	80
June....	5,474	45½	34½	2,323	83	74
July....	2,774	38¾	25	1,504	77	65
August....	3,525	29	17	1,943	68	50
September....	3,191	38	29	778	79	70
October....	4,977	45	29½	2,116	89½	75

RUBBER-GOODS EXPORTS FROM NEW YORK.

THE figures herewith express the values of rubber goods exported from New York during the nine weeks ending October 31, 1893, (covering the period since our last published report) as declared at the Custom-house. It may be mentioned that the exports from New York amount usually to about 53 per cent. of the total exports of rubber goods from the United States; also, that exports by land routes to Canada and Mexico seldom are recorded in the government statistics.

To—	Value.	To—	Value.
Africa, British....	\$ 487	Hayti.....	\$ 687
Antwerp.....	2,426	Hong Kong.....	41

Asia.....	\$ 240	Japan.....	\$1,026
Australia.....	1,717	Lille.....	327
Azores.....	20	Liverpool.....	1,397
Berlin.....	1,070	London.....	1,831
Brazil.....	476	Mexico.....	2,460
Bremen.....	1,982	Moscow.....	49
Brussels.....	326	Newfoundland.....	501
Budweis.....	300	New Zealand.....	3,143
Central America.....	1,577	Nova Scotia.....	181
Chili.....	3,272	Nuremberg.....	168
Christiania.....	244	Peru.....	255
Colombia.....	1,826	Porto Rico.....	240
Copenhagen.....	3,815	Rotterdam.....	2,385
Cuba.....	5,547	San Domingo.....	209
Dresden.....	225	Southampton.....	1,439
East Indies, British.....	34	Venezuela.....	797
East Indies, Dutch.....	60	West Indies, British.....	540
Ecuador.....	108	West Indies, Danish.....	357
Genoa.....	10,013	West Indies, Dutch.....	88
Glasgow.....	938	Zurich.....	614
Hamburg.....	5,549		
Havre.....	12,700	Total.....	\$74,793

The exports of crude India-rubber during the same period amounted in value as follows:

To—	Value.	To—	Value.
Amsterdam.....	\$ 4,145	Liverpool.....	\$138,102
Antwerp.....	55	London.....	15,062
Bremen.....	3,500	Rotterdam.....	4,127
Genoa.....	1,034	Southampton.....	1,889
Hamburg.....	21,639	Venezuela.....	24
Havre.....	21,780		
Leith.....	2,844	Total.....	\$212,231

In addition to the exports mentioned above "India-rubber scrap" was shipped to Glasgow to the value of \$1265; Liverpool, \$1361; Boulogne, \$200; London, \$1391; and Havre, \$538. "India-rubber thread" was exported to Rotterdam to the value of \$1083; to Havre, \$1035; and to Hamburg, \$11589.

RUBBER AWARDS AT THE WORLD'S FAIR.

EACH of the rubber-shoe companies represented at Chicago has received an award from the officials of the World's Fair. The only tangible evidence of this award so far is a very handsome blue ribbon on which is printed in gold letters a facsimile of the medal which it is presumed they will receive in due time. Underneath is a statement that it is issued by the authority of the World's Columbian Exposition. It is signed by George R. Davis, director-general, and John Boyd Thacher, chairman of the committee of awards, and endorsed "Department H, Manufactures, James Allison, chief." Below this is the statement that it is a premium awarded for rubber boots and shoes, with the name of the company printed below. All of the companies seem a trifle in doubt as to what they are to get further, and there has been some questioning as to whether a medal for special excellence in exhibit will be awarded to any other company. The awards were made to the American Rubber Co., Boston Rubber Shoe Co., Goodyear Metallic Rubber Shoe Co., Woonsocket Rubber Co., C. J. Bailey & Co., and the Boston Belting Co. (for rubber soling).

In addition the following awards have been made in Group 109, Manufactures:

- American Rubber Co. (Boston), mackintoshes.
- C. J. Bailey & Co. (Boston), rubber brushes.
- Elastic Tip Co. (Boston), rubber specialties.
- The India Rubber Comb Co. (New York), hard and soft rubber goods.
- Stoughton Rubber Co. (Boston), men's rubber clothing.
- A. J. Tower (Boston), waterproof clothing.
- Washburn & Moen Manufacturing Co. (Worcester, Mass.), insulating compounds.
- Boston Belting Co., rubber belting, hose, packing, etc.
- New York Belting and Packing Co., rubber belting, packing, etc.

Germany.—Fellen & Guilleme, Mulheim; Deutsch Loofah Weker, Halle; Gummiwerk, Carl Schanitz, Berlin; Metzger & Co., Munich; Louis Wertheim, Frankfurt o/M.

Russia.—Russian-American Rubber Co., St. Petersburg.

Great Britain.—Anderson, Anderson & Anderson, London.

Argentina.—Jacob Penser, Buenos Ayres (rubber stamps); S. Borok, Buenos Ayres (rubber hose, etc).

Guatemala.—M. M. Camps, Guatemala (rubber stamps).

In the *Wheel* (New York) appears an interview with Irving Miller, judge of the bicycle exhibits at the World's Fair, in which are some suggestions capable of general application. The point made is that the World's Fair awards are not so valueless as some have supposed.

"The value of the award," said Mr. Miller, "is in the wording of the judges' report. In this report the judges were, in every case, obliged to state specifically why and on what special fea-

tures of construction the awards were made; not only this, but when awards were refused full and technical reasons therefor had also to be given in the reports. I agree that the mere statement that a bicycle or any other article secured an award carries with it little or no weight or significance, but when you read the judges' reports you will understand that they do stand for something."

"Will these reports be made public?"

"Yes, they will all be published by the National Commission, not only the favorable reports, but the unfavorable ones as well. They will make interesting reading."

Mr. Miller also said that the number of awards were governed by the manner in which entries were made. For instance, if a concern made but one entry of its entire exhibit, but one award was possible; if each article was entered separately, an award on each and every article was possible.

REVIEW OF THE RUBBER MARKET.

UNTIL a few days ago the rubber market continued to be dull and heavy, declining from 70 cents for new Islands to 64 cents. The dullness of the market was due to the general sluggishness of the trade in rubber goods outside of the boot and shoe branch, which has been very fair. The manufacturers continued to buy from hand to mouth. The repeal of the silver purchase clause of the Sherman law had next to no effect on the trade. It had been discounted in advance. During the last few days, however, the demand for crude rubber has increased, and new Islands fine has advanced to 65. The market now is firm, the supplies having been nearly exhausted. The greater animation of the market is partially attributed to the recent elections. It is not, perhaps, the outcome so much as the fact that they are over, and that there is nothing to prevent business from receiving the undivided attention of the people. There are good prospects for an active market during the next month. The rubber trade has stood the recent stringency and depression very well indeed, displaying great strength and solidity, and it will be among the first to experience the anticipated and felt improvement in the business world.

Very little rubber has been exported to Europe from New York. The deliveries in Europe have been smaller than during last month, while in this country they have been larger. The Brazilian revolution has not interrupted the exportation of rubber, and no difficulties are apprehended for the future.

The statistical position of Pará rubber in New York and elsewhere is as follows:

	Fine and Medium.	Coarse.	Total.	Totals 1892.
Stock, September 30..	645	55	700	664
Arrivals, October....	493	234	727	371
Aggregating.	1138	289	1427	1035
Deliveries, October...	553	265	818	372
Stock, October 31....	585	24	609	663
		1893.	1892.	
Stock in England, October 31.....		676	647	
Deliveries in England, October.....		587	600	
Pará receipts, October.....		1860	1670	
Stock in Pará, October 31.....		960	940	
World's supply, October 31 [Excluding caucho.]		2905	3055	
Pará receipts July-October.....		5410	5085	
[Four months of crop year.]				
World's supply, June 30.....		2263	1756	

Pará receipts, July-October...	5410	5085
Aggregating.....	7673	6841
Deliveries, July-October.....	4768	3786
World's supply, October 31.....	2905	3055

The latest quotations in the New York market are:

Pará, fine, new.....	65@68	Sierra Leone.....	25@38
Pará, fine, old.....	70@72	Benguela.....	47@48
Pará, coarse, new.....	45@51	Kongo Ball.....	36@40
Pará, coarse, old.....	48@53	Small Ball.....	33@36
Caucho (Peruvian) strip.....	47@48	Flake, Lump and Ord. .	27@28
Caucho (Peruvian) ball.....	52@53	Accra Flake.....	18@19
Mangabeira, sheet.....	36@40	Madagascar, pinky.....	56@58
Esmeralda, sausage.....	47@48	Madagascar, black.....	38@41
Guayaquil, strip.....	35@42	Borneo.....	26@42
Nicaragua, scrap.....	46@47	Gutta-percha, fine grade..	1.30
Nicaragua, sheet.....	43@44	Gutta-percha, medium... .	1.00
Thimbles.....	38@49	Gutta percha, hard white.	85

In regard to the financial situation Messrs. Simpson & Reers, brokers in crude India-rubber and commercial paper, say:

"During October a complete reversal in monetary conditions took place. The last Clearing-house certificates have been cancelled. Moreover, the country is rejoicing finally in the gratifying result of the repeal of the 'Sherman act.' Our city banks now hold upwards of \$50,000,000 of reserves,—the largest amount since 1885,—which has induced them to invest very largely in outside commercial paper, mostly at 6 per cent. for first-class, bills receivable having from two to six months to run. We quote four and 6 months single-name paper from 7 to 9 per cent. as to grade. Owing to the rapid absorption of rubber paper by our banks, it is only in limited supply. Easy money will no doubt prevail for a long time."

IMPORTS FROM PARÁ.

THE imports in detail of rubber direct from Pará at the port of New York, since our last report, have been as follows, all quantities being expressed in pounds:

October 16.—By the steamer *Cyril*, from Pará and Manáos:

	Fine.	Medium.	Coarse.	Caucho.	Totals.
Reimers & Meyer'	47,300	5,200	42,000	8,600	103,100
Joseph Banigan.....	49,600	16,000	19,700	5,400	90,700
Boston Rubber Shoe Co..	40,500	11,000	18,000	5,000	74,500
Hagemeyer & Brunn.	44,700	9,700	8,000	4,500	66,900
New York Commercial Co.	39,400	5,600	6,600	...	51,600
L. Johnson & Co.....	28,000	3,400	4,000	...	35,400
Herbst Brothers.....	300	...	2,800	13,000	16,100
G. Amsinck & Co.....	10,000	1,400	2,800	...	14,200
Shipton Green.....	2,600	300	1,300	...	4,200
George Cowl.....	3,400	400	900	...	4,700
Total.....	265,800	53,000	106,100	36,500	461,400

October 28.—By the steamer *Origen*, from Pará :

New York Commercial Co.	118,200	11,200	30,400	.....	159,800
Joseph Banigan.....	50,700	400	55,400	8,600	122,100
Boston Rubber Shoe Co....	34,200	5,100	39,700	10,100	89,100
Reimers & Meyer.....	1,100	.....	48,600	17,000	66,700
L. Johnson & Co.....	.....	.....	19,800	.....	19,800
G. Amsinck & Co.....	7,900	1,100	2,400	.....	11,400
Shipton Green.....	4,300	800	1,600	.....	6,700

Total..... 216,400 25,600 197,900 35,700 475,600

October 30.—By the steamer *Clement*, from Pará :

Reimers & Meyer.....	33,400	3,800	8,800	700	46,700
Joseph Banigan.....	10,800	1,200	3,900	.....	15,900
New York Commercial Co.	11,400	400	900	.....	12,700
Hagemeyer & Brunn.....	5,000	700	700	.....	6,400

Total..... 60,600 6,100 14,300 700 81,700

November 10.—By the steamer *Paracuse*, from Pará :

New York Commercial Co.	156,000	20,700	44,800	25,500	247,000
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Reimers & Meyer.....	102,100	12,500	60,200	1,800	176,600
Boston Rubber Shoe Co....	76,000	14,300	62,400	6,400	159,100
Joseph Banigan.....	77,500	14,300	61,700	2,900	156,400
W. R. Grace & Co.....	26,800	2,900	12,600	.....	42,300
Shipton Green.....	24,900	2,500	10,700	.....	38,100
Lawrence Johnson & Co....	11,400	700	18,000	.....	30,100
C. Ahrenfeldt & Son.....	3,500	.....	.....	23,700	27,200

Total..... 478,200 67,900 270,400 60,300 876,800

October Imports of Pará rubber..... 1,661,600

September Imports..... 757,200

August Imports..... 914,100

July Imports..... 579,200

June Imports..... 1,955,912

May Imports..... 1,307,600

April Imports..... 3,881,400

March Imports..... 2,107,600

February Imports..... 2,924,300

January Imports..... 3,349,000

December Imports..... 4,809,600

IMPORTS OF CENTRALS.

BELOW will be found in detail the imports at New York, during October, 1893, of India-rubber from Mexico, Central America, and South America, other than Pará grades :

OCT. 1.—By the *Alba*=Cartagena :

H. S. Forwood.....	1,000
G. Amsinck & Co.....	5,000
W. R. Grace & Co.....	5,300
Flint & Co.....	300
J. Ferro.....	1,000
Kurhardt & Co.....	300

Total..... 10,900

OCT. 3.—By the *Neuport*=Colon and other ports :

J. Agostini & Co.....	570
G. Amsinck & Co.....	5,400
Piza Nephews & Co.....	4,400
J. Aparicio & Co.....	454
Munoz & Esprella.....	1,020
Marquardt & Co.....	2,854
Lamman & Kemp.....	602
H. Samper & Co.....	1,849
Munoz & Esprella.....	564
G. Pardo & Co.....	308
Hirzel, Feltman & Co.....	885
W. R. Grace & Co.....	309
To Order.....	264
W. R. Grace & Co.....	1,911
G. Amsinck & Co.....	5,792
A. Santos & Co.....	4,983
G. Amsinck & Co.....	2,000
W. Muller.....	488
To Order.....	776
G. Amsinck & Co.....	3,750
W. R. Grace & Co.....	1,600
G. Amsinck & Co.....	2,281
Dumarest & Co.....	631
Anall & Co.....	2,780
C. Roldan & Van Sickle.....	370
Meeke & Co.....	574
C. Roldan & Van Sickle.....	656
Munoz & Esprella.....	864
I. Kahre & Co.....	900

Total..... 48,874

OCT. 4.—By the *Saratoga*=Frontera :

J. Agostini.....	700
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OCT. 7.—By the *El Cid*=New Orleans :

Cerf Hirsch & Co.....	2,300
Earle Brothers.....	10,000

Total..... 12,300

OCT. 11.—By the *Seneca*=Vera Cruz :

Thebaud Brothers.....	300
Marquardt & Co.....	200
Frederic Probst & Co.....	200

Total..... 600

OCT. 11.—By the *Colombia*=Colon and other ports :

J. Aparicio & Co.....	378
A. F. Strout.....	3,882
Munoz & Esprella.....	2,375
Flint & Co.....	1,373
O. Amsinck & Co.....	637
H. Feltmann & Co.....	1,100
G. Amsinck & Co.....	2,100
Bock & Co.....	3,230
Flint & Co.....	1,143

Total..... 16,218

OCT. 14.—By the *El Rio*=New Orleans :

Cerf Hirsch & Co.....	9,500
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OCT. 14.—By the *Athos*=Cartagena :

Kurhardt & Co.....	800
Valentine Brothers.....	700
H. S. Forwood, for London and Hamburg.....	2,800

Total..... 3,800

OCT. 16.—By the *Simon Dumois*=Boco del Toro :

A. N. Rotholz.....	100
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OCT. 17.—By the *Cuba*=Greytown and Central Ports :

Eggers & Heinlein.....	25,000
Ledcraft & Co.....	100
Hoadley & Co.....	600
G. Amsinck & Co.....	1,800

Total..... 27,500

OCT. 17.—By the *Hudson*=New Orleans :

Earle Brothers.....	3,000
To Order.....	2,500

Total..... 5,500

OCT. 21.—By the *City of Pará*=Colon and other ports :

J. M. Ceballos & Co.....	10,207
A. Santos & Co.....	8,114
Hoadley & Co.....	2,315
Hirzel, Feltman & Co.....	7,824
G. Amsinck & Co.....	16,665
New York Commercial Co.....	12,267
C. Roldan & Van Sickle.....	5,400
Munoz & Esprella.....	1,713
W. R. Grace & Co.....	2,094
Piza Nephews & Co.....	1,672
A. P. Strout.....	1,616
J. Aparicio & Co.....	205
Dumarest Brothers.....	2,311
H. W. Peabody.....	5,000

Total..... 84,607

OCT. 25.—By the *Yumuri*=Frontera :

Thebaud Brothers.....	200
H. Marquardt & Co.....	200

Total..... 400

OCT. 25.—By the *Panama*=Vera Cruz :

Thebaud Brothers.....	400
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OCT. 26.—By the *Premier*=Boco del Toro :

De Long, Betts & Co.....	3,000
W. H. Crossman & Brothers.....	5,800

Total..... 8,800

OCT. 29.—By the *Cuidad Condal*=Vera Cruz :

Graham, Hinkley & Co.....	200
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OCT. 30.—By the *Alert*=Greytown :

Eggers & Heinlein.....	1,000
Hoadley & Co. (Greytown).....	1,250
Eggers & Heinlein (Cape Gracias).....	9,500
K. Mandell & Co. (Porto Cortez).....	750
Eggers & Heinlein (Porto Cortez).....	385
Eggers & Heinlein (Belize).....	1,297

Total..... 14,322

OCT. 30.—By the *Andes*=Cartagena :

Pim, Forwood & Co. (for London).....	1,400
W. R. Grace & Co.....	3,000
Henry W. Peabody & Co.....	1,050
A. F. Strout (Greytown).....	1,800
Munoz & Esprella (Greytown).....	6,000
G. Amsinck & Co. (Greytown).....	900
Fabien & Mendi (Greytown).....	300
Jacob Balz (Greytown).....	750

Total..... 16,200

OCT. 31.—By the *Knickerbocker*=New Orleans :

Earle Brothers.....	1,600
Gillespie Brothers.....	3,600

Total..... 5,200

Total Imports for October..... 255,321

Total for September..... 143,264

Total for August..... 134,636

Total for July..... 293,526

Total for June..... 190,921

Total for May..... 257,481

Total for April..... 209,383

Total for March..... 277,459

Total for February..... 244,525

Total for January..... 222,318

Total for December..... 208,196

Total for November..... 297,100

Total for October..... 207,715

Total for September, 1892..... 140,736

BOSTON ARRIVALS.

SEPT. 3.—By the *Craymore*=Hamburg :

Reimers & Meyer, Africans.....	9,500
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SEPT. 20.—By the *Otoman*=Liverpool :

Reimers & Meyer, Africans.....	4,000
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SEPT. 22.—By the *Duham City*=London :

Reimers & Meyer, Africans.....	1,300
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SEPT. 22.—By the *Stag*=Hamburg :

Reimers & Meyer, Africans.....	9,000
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SEPT. 23.—By the *Pavonia*=Liverpool :

Reimers & Meyer, Pará.....	8,500
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Total Imports for September..... 32,300

OCT. 1.—By the *Scythia*=Liverpool :

Reimers & Meyer, Fine Pará.....	18,000
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Reimers & Meyer, Africans.....	16,000
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OCT. 4.—By the *Angloman*=Liverpool :

Reimers & Meyer, Africans.....	13,000
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OCT. 6.—By the *Indianapolis*=Grand River :

W. H. Crossman & Brothers, Nicaragua Scrap.....	28,000
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OCT. 7.—By the *Borders*=London :

Reimers & Meyer, Africans.....	11,000
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OCT. 9.—By the *Cephalonia*=Liverpool :

Woonsocket Rubber Co., Africans.....	33,000
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OCT. 17.—By the *Cambrian*=Liverpool :

Reimers & Meyer, Africans.....	8,000
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OCT. 19.—By the *Alaska*=Hamburg :

Reimers & Meyer, Africans.....	8,000
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OCT. 24.—By the *Ottoman*=Liverpool :

G. A. Alden & Co.....	4,800
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Reimers & Meyer, Africans.....	8,500
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OCT. 24.—By the *Cinamora*=London :

G. A. Alden & Co., Africans.....	2,500
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OCT. 26.—By the <i>Milanese</i> =London :	
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Roper, Emmerlon & Co., Madagascar.....	7,800
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Total Imports for October..... 159,600

Total for August..... 58,000

Total for July..... 119,100

Total for June..... 215,470

Total for May..... 172,664

Total for April..... 185,500

Total for March..... 221,400

Total for February..... 525,513

Total for January..... 309,640

Total for December..... 255,120

Total for November..... 297,100

Total for October..... 100,650

NEW ORLEANS.

SEPTEMBER.

	FOUNDS.	VALUE.
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From Nicaragua.....	35,500	\$12,303
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OCTOBER.

From Nicaragua.....	\$3,972	\$10,851
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